

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

We're Baseball Fans, Too
Another Gal Heard From
Fabulous Casey Stengel
Good Question
And Another Thing...
Managers Can Be Valuable
—or Ruinous
The Wayward Press and Radio

We're Baseball Fans, Too

Nearly everybody we know in the air conditioning and refrigeration industry is a baseball fan.

Hence, at least three times each season "Dope" presents a series of baseball anecdotes.

Here we go again:

On her honeymoon, curvaceous Marilyn Monroe left hubby Joe DiMaggio in Japan, to entertain troops in Korea.

Marilyn can't sing or dance; but all she needs do is walk enticingly, and men perspire freely and happily.

All-time-classic remark from a Korea G.I. after her performance: "So nice to see a face from home."

Another Gal Heard From

To every member of the Baseball Writers Association who voted for Al Rosen as the Most Valuable Player of 1953, Mrs. Al Rosen sent a cute thank-you note.

"He is most valuable to me," she penned.

Fabulous Casey Stengel

Long before Billy Martin saved the 1952 (and won the 1953) World Series for him, manager Casey Stengel became addicted to Bronco Billy. Martin was Casey's favorite, for sure.

Casey picked him out of a bunch of kids who came to an Oakland trout clinic. From that time henceforth he kept a squinty eye on him.

Later, Stengel attended a banquet in Phoenix where Martin was honored for having won the batting championship of the Arizona-Texas League.

Billy examined his trophy, and let out a volley of oaths. On the silver goblet was engraved that his batting average was .390.

"I hit .392," Billy angered.

From then on Martin was "His Boy" to Stengel.

While managing the New York Yankees, at least, Stengel's word was law. Only player who ever dared protest Stengel's batting order was "his boy," Billy Martin.

And it was Martin's first day with the Yanks!

Martin snatched the Batting Order of the Day off the clubhouse bulletin board and raged into Casey's lair.

"You think I'm the groundskeeper er sumpin'? I ain't hittin' in no eighth place."

"Should I hit you clean-up?" mocked the Ole Perfessor.

"You could do worse," calmed Billy.

Good Question

The Red Sox had an exhibition game scheduled with the Phillies at Clearwater, Fla. a few years ago. They left several of their key players back in Sarasota.

President Bob Carpenter and Manager Eddie Sawyer of the Phillies were sore about the absence of these Bosox stars.

"Don't you believe in public relations?" Carpenter angered.

(Concluded on Page 20, Col. 4)

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New ARI Standards Offer Assistance on Applications of Many Types of Products

WASHINGTON, D. C.—Publication of the first set of ARI Standards, including 31 individual standards covering a wide range of air conditioning and refrigeration products, is announced by the Air-Conditioning and Refrigeration Institute here.

While the newly published standards are the first to bear the ARI name, most are revised editions of standards previously published by the Air Conditioning and Refrigerating Machinery Association and the Refrigeration Equipment Manufacturers Association, predecessors of ARI.

Of particular interest, ARI believes, is the tentative Standard 6-10 Application Engineering Standard for Year-Round Residential Air Conditioning. It includes the institute's recommendations for calculating residential cooling loads.

The institute is carrying on an extensive standardization program and will publish new standards, as well as revisions of existing standards, from time to time to meet the needs of the industry, ARI officials said.

Generally, the purpose of the standards is to specify the desirable minimum equipment and performance which should constitute that particular product. The stand-

ards are to be construed as defining recommended practice rather than hindering progress or preventing the use of other standards where such are justified by the economies of a case and where departures below good practice minimums are made clear to the buyer.

The standards, generally, include minimum equipment, methods of rating and testing, and design and safety standards.

All of the standards, either individually or in the complete bound set, are available from ARI headquarters at 1346 Connecticut Ave., N.W., Washington 6, D. C. Price of the complete set is \$5.

Standards for room air conditioners is priced at 35 cents. It includes the standard itself and a cooling load estimate form.

Standards for self-contained air conditioners (35 cents) also includes a cooling load estimate form.

Standard for open-type refrigeration condensing units, 20 hp. and smaller for commercial application is priced at 35 cents. It applies to all electric motor driven refrigeration condensing units, air or water cooled, using "Freon-12," "Freon-22," methyl chloride, or sulphur dioxide as the refrigerant.

(Concluded on Page 4, Col. 1)

Odd Prices Resulting From Excise Tax Cuts Seen as Short Lived

DETROIT—The odd suggested list prices on some appliances brought about by the manufacturer passing on the exact amount of the excise tax cut is not expected to last beyond the life of current models, a number of producers have indicated.

It is expected that the manufacturers who cut their prices to the penny on the excise tax reduction to produce such figures as \$383.02 for a 10.5-cu. ft. refrigerator will return to the traditional 95 cent (Concluded on Back Page, Col. 5)

'Warm In May' Is the Prediction—As of Now

GRAND RAPIDS, Mich.—"Warmer May and June prospects for the entire country east of Kansas City" were predicted by Eugene A. Tracey, vice president of the Mitchell Mfg. Co., "but for approximately 500 miles in all directions from Chicago, the heat will be unusually high in May."

This prediction is based on an "amazingly accurate" four-month forecast made for Mitchell each year by the Krich research organization.

This expected warm weather and good general business conditions will team up to produce a minimum of \$450 million in room air conditioner sales this year, he said.

His expectations of good business conditions are based on findings that "for the past six months the ratio of consumption of consumer durable goods has been \$3 (Concluded on Page 2, Col. 2)

Hokin Is Elected Unarco President

CHICAGO—The election of Edwin E. Hokin as president and chief executive officer of Union Asbestos & Rubber Co., and the naming of Norman C. Naylor as chairman of the board, were announced recently following the annual stockholders meeting.



E. E. Hokin

Naylor told stockholders that sales for the first quarter of 1954 approximated \$4,260,000 as against \$3,225,000 for the same period in 1953. Billings for the first quarter of 1954 were approximately \$3,150,000 as (Concluded on Page 4, Col. 4)

G-E Air Conditioning Div. Reports Record Quarter; Shipments Double '53

BLOOMFIELD, N. J., April 15—The best first quarter on record for the General Electric Co.'s Air Conditioning Div. is reported today by F. J. Van Poppelen, general manager of the division. Orders for most lines were up 100% over the first quarter of 1953, the G-E division's previous record year.

Van Poppelen reported shipments for the first quarter of 1954 are more than double those of the same period last year.

"The demand for air conditioning and heating equipment has been tremendous," he said. "A new plant acquired last August has (Concluded on Page 4, Col. 5)

Industry To Face Cities' Action on Water Disposal

LOS ANGELES — Although water supply for air conditioning and refrigeration condensing is recognized nationally as an increasingly serious problem, facilities for disposal of waste water can be of equal importance.

Latter problem has become acute in this area, according to the city's Bureau of Sanitation.

In fact, the bureau recently threatened to enforce one of its long-ignored rules prohibiting runoff of clear waste water into the sewer system in excess of 25 gals. per hour.

Prompt protest by the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc., however, resulted (Concluded on Back Page, Col. 5)

Comfort Cooling Market Is Pinpointed by Miami Utility Survey

MIAMI, Fla.—Anxious to determine the trends in air conditioning for the future in Dade county — much of the greater Miami area—the Florida Power & Light Co. recently conducted a survey of the growth and present extent of air conditioning there in terms of tonnage.

Briefly, the survey indicated that the utility can reasonably expect upwards of 175,000 tons of refrigerated air conditioning—commercial, residential, and room coolers—to be operating in the county by 1961.

The utility determined that out of a market of 22,270 commercial customers, air conditioning salesmen had sold 1,888 or 8.5% and had prospects of selling 9,247 more. Of the nearly 200,000 residential customers, they had sold 16,360 or 8.2% and had prospects of selling 83,401 more.

Of the 1,888 commercial and industrial three phase installations, 28% were in office buildings, (Concluded on Page 2, Col. 5)

Lee Clark Retires from Frigidaire on May 1

DAYTON—Retirement of Lee A. Clark, assistant general sales manager for Frigidaire Div., General Motors Corp., was announced last week by H. F. Lehman, Frigidaire general sales manager. Clark's retirement becomes effective May 1.

Active in the major appliance sales field for 30 years, Clark had held the post of Frigidaire assistant general sales manager since 1943. He joined the Frigidaire organization in 1929 as a sales promotion specialist and by 1933 was sales promotion manager. Less than a year later he was (Concluded on Page 4, Col. 5)

Firms Producing '54 Conditioners Up Over 1953

Room Conditioner Firms
Number 57% More; Home
System Makers Up 36%

DETROIT—Specifications on the self-contained room coolers, store coolers, and residential air conditioning units that 108 companies are marketing this year are tabulated in this issue.

The tabulations include key information on every model in 71 lines of room air conditioners, 42 lines of self-contained packaged units for commercial use, and 56 brands of residential coolers.

The number of producers of units in each of these categories show a marked increase over the number of manufacturers who submitted data to the News last year. The number of room cooler lines has increased 57%. Store cooler lines are up 31%, and residential coolers 36%.

Room air conditioner specifications are on pages 40, 41, 42, 43, 44, 45, 46, and 52. Store coolers

This Issue Is All About — Air Conditioning

This is the traditional "Air Conditioning Special" issue of the News which marks the kickoff for the heavy selling season.

In addition to the listing of the key specifications on all models of all makes of self-contained air conditioning equipment, readers will find in the issue many articles on the newest developments in engineering, application, and merchandising methods in the air conditioning field.

are found on pages 47 through 49. Residential units are listed on pages 35 through 38.

As a special feature, pictures of room air conditioner models that were available are included with the specifications.

The listings given in this issue cover nearly all known producers of self-contained air conditioners in the United States. Only a handful of companies known to be marketing or planning to market units this year did not submit data for this issue.

Only a very few manufacturers who reported their specifications last year said that they were no longer in the business.

To avoid confusion, these listings do not include "package" water chilling systems for air conditioning, or convactor units or blower units that do not include a condensing unit.

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FOR
REFRIGERATION
AND
AIR CONDITIONING
EQUIPMENT...

SPECIFY

**READING
QUALITY
COPPER
TUBING**



**READING
TUBE CORPORATION**

EMPIRE STATE BUILDING
NEW YORK 1, N. Y.
WORKS: READING, PA.

Warm in May--

(Concluded from Page 1)

billion higher than production," disposable income after taxes has increased, short term debt is being paid off faster than in the past several years, and that more housing starts were made in February than at any time during the past five months.

"Room air conditioners will bolster 1954 sales and profits for appliance dealers, whose primary source of income during the past several years has been refrigerators, television, and washing machines," Tracey declared.

"I can almost guarantee," he asserted, "that if your sales talk on room air conditioners fortifies the comfort story with the advantages to health offered by this product your sales and profits in this industry will amaze you."

Tracey said sales estimates in 1954 range from 1,300,000 to 2,000,000 units.

"Take 1,500,000 units as a reasonable estimate," he said, "and you will see that the country sales of room air conditioners in 1954 will be a minimum of \$450 million."

Tracey estimated that the state of Michigan, which last year accounted for 12% of all room air conditioner sales, will contribute a minimum sales volume of \$5.4 million and probably a larger volume with the improved weather predicted.

Market Pinpointed--

(Concluded from Page 1)

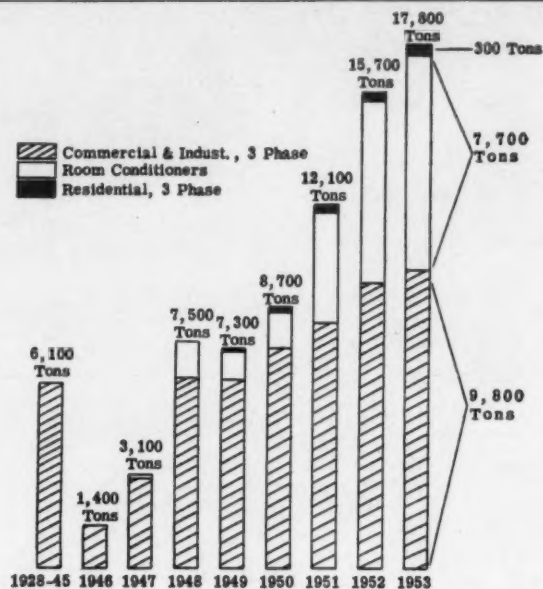
offices, and sales rooms, 14% in wearing apparel shops, 13% in other retail and department stores, 12% in restaurants, 11% in motels, hotels, and apartments, 9% in theaters and places of entertainments, 6% in drug and sundries stores, 4% in grocery stores, and 3% in churches, funeral parlors, schools, auditoriums, and hospitals.

Explaining how the information for this survey was gathered, R. S. Bostwick, Florida Power's sales manager for the Miami area, said, "After examination of the problem, we decided that a survey of the 22,000 commercial customers to be physically impossible. Since the majority of air conditioning units in commercial places over 3-ton capacity are served from three-phase lines, we decided to make a field check only on those customers who had that class of service."

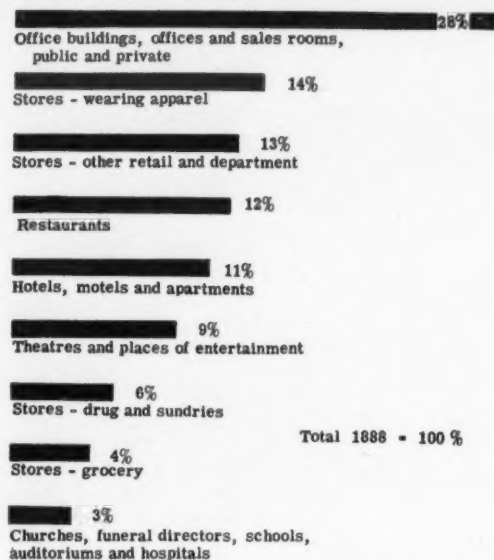
"We are more interested in the trends for the future in terms of tonnage rather than in the number of individual installations."

"Windows and room air conditioning units have been continually reported to us when sold, through the method of wholesale electric distributor reports."

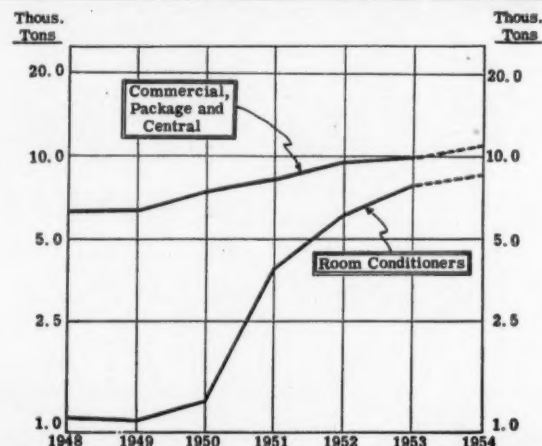
"The statistical information for residential three-phase air conditioning had from its inception been carefully mapped and a complete card file was available on each installation."



AIR CONDITIONING SALES RECORD, DADE County, was compiled by Florida Power & Light Co. from a field survey of commercial and industrial users of 3-phase service, distributor reports of room cooler unit sales (multiplied by 6/10 to get tonnage figure), and a location card system of residential 3-phase installations. It shows how market is divided by type of job.



CLASSIFICATION of commercial air conditioning users in Dade County through 1953 is in percentage by type of user.

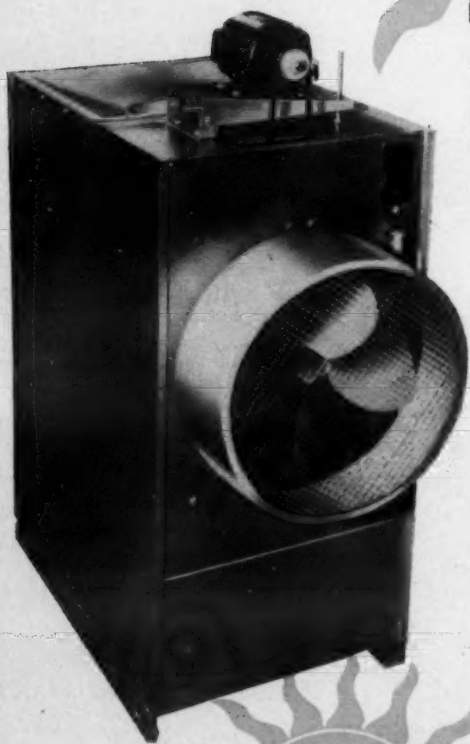


POST-WAR AIR CONDITIONING sales in Dade County with 1954 sales projection. Dotted portion of chart—produced on logarithmic ratio paper—is a conservative sales projection.

Will you be

free to **SELL-**
or forced to **SERVICE-**

in the peak season?



Experienced air conditioning contractors know that they cannot make full profit during the peak season if they are plagued with cooling tower service calls. That's why they overwhelmingly choose Marley Aquatowers for air conditioning services in the 2-60 ton range.

Marley Aquatowers*

consistently deliver peak performance with an absolute minimum of service and repair. Every element in the Aquatower design keeps the contractor's profit in mind. Simple installation . . . ease of maintenance . . . bronze fan bearing bushing with stainless steel fan shaft . . . lifetime redwood filling . . . fans that move air in volume . . . all in the sturdy Marmastic lined case—this is the Marley Aquatower, master tower of the industry.

Aquatowers not only free you from service calls—they conserve selling time. They are pre-sold in the big home and business magazines by the largest advertising program in the industry and backed up locally in many areas with comprehensive newspaper campaigns. The Aquatower line is the profit line; see your nearest Marley representative today.

*Trademark Reg.

The Marley Company

Kansas City, Missouri

The next BIG Appliance...
ROOM AIR CONDITIONERS



and **Lombard** has the unit

Priced Right!

Priced to become your air conditioning "leader."

All Steel!

This is not a "cheapened" unit, but a real buy!

High Capacity!

Highest BTU output per hour in standard units.

Attractive!

Neat and trim . . . a modern beauty in good taste.

Quality Plus!

From its GE fan unit to its complete thermostatic operation.

Easy to Install!

Complete kit for easy installation in any window.

Get the facts NOW—write

DISTRIBUTORS-DEALERS

LOMBARD MFG. CO., Youngstown, O.

DEALERS DISCOVER A DOUBLE DIVIDEND IN PUSHING FRIGIDAIRE ROOM CONDITIONERS

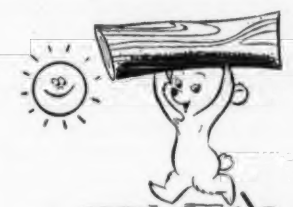
The greatest array of comfort and economy features in history takes all the big troubles out of sales and service

Across the country, Dealers have discovered that Frigidaire Room Conditioners offer the greatest reward for extra sales effort of any room conditioner made. Every bit of extra sales push is repaid a hundredfold. First, sales themselves are so much simpler and faster. Scores of easily demonstrated, exclusive features spell out a story of bonus comfort and economy that closes more sales per inquiry . . . that converts buyer interest to buyer action, "on the dotted line." Second, buyers stay sold. A Frigidaire Silver Anniversary Room Conditioner

delivers everything promised, and more. It means satisfied word-of-mouth advertising. It means more sales of second and third units to owners. And, above all, this built-in quality means less time and money wasted on complaints, call-backs and service.

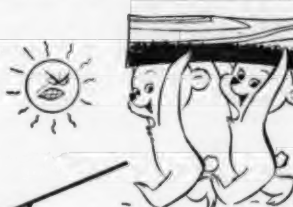
With the greatest list of competitive advantages in the industry, Frigidaire Room Conditioners have proved to be the real short cut to capitalizing on the tremendous demand for air conditioning . . . the inside track to reaping more trouble-free profits from every sale.

CUSTOMERS ARE EASILY SOLD AND STAY SOLD ON EXCLUSIVE THRIFTY TWIN COOLING!



JUST ONE WORKS ON MOST HOT DAYS

In moderate weather, or at night, just one Meter-Miser cooling system operates to give complete air conditioning . . . saves up to half the cooling cost.



BOTH WORK ON VERY HOT DAYS

When the temperature soars, on real "scorchers", both Meter-Miser cooling systems team up to double cooling power, increase dehumidifying, economically.

FRIGIDAIRE, AND FRIGIDAIRE ALONE, PUTS TWO COMPLETE COOLING SYSTEMS INSIDE A SINGLE WINDOW-TYPE ROOM CONDITIONER.

Like two conditioners in one!

Customers can quickly grasp the wonderful advantages in Thrifty Twin cooling. They can instantly understand how it offers finger tip tuning to all outside temperatures and prevents under-cooling or over-cooling. And they really stay sold

when they compare electric bills with others whose room units use wasteful, inefficient methods to hold down cooling power in moderate weather. It's the greatest sales-making comfort and economy story in the industry.

Customers are easily sold and stay sold on exclusive "Great Circle Cooling"



In moments, salesmen can demonstrate how the completely adjustable grilles direct the air up and around, tailor the flow to the exact size and shape of the room and make use of all the cooling power generated regardless of window

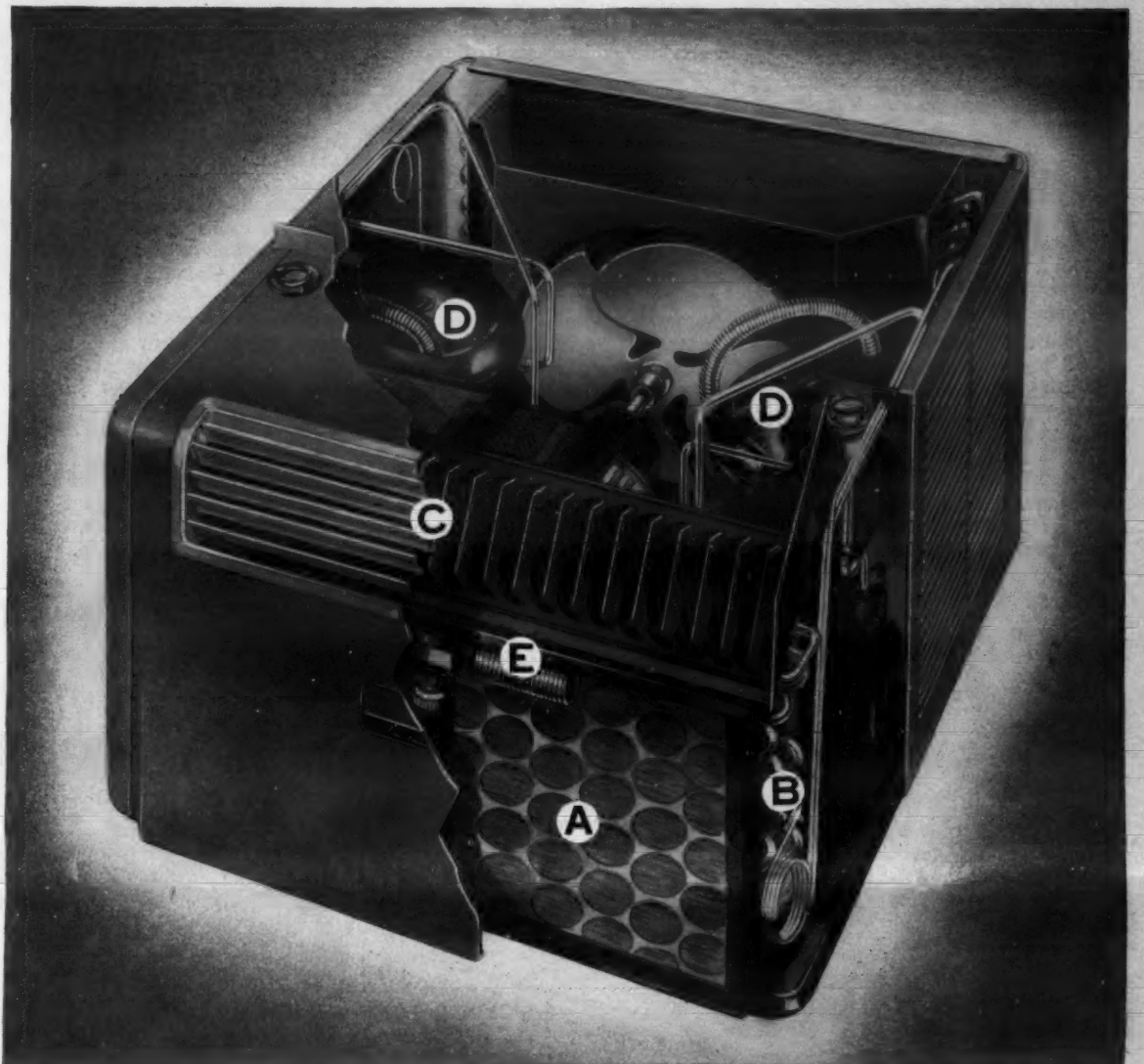
location. And customers stay sold when they discover how this scientific circulation surrounds them gently with crisp, clean, refreshing comfort . . . free of annoying drafts, warm, moist "pockets" and layers of hot or cold air.



Frigidaire
Room Conditioners

BUILT AND BACKED BY GENERAL MOTORS

Frigidaire Division of General Motors, Dayton 1, Ohio



Just a look inside, compared with other makes, is enough to close many a sale . . . to give visible proof of built-in quality that promises long, trouble-free operation. (A) The giant full-width, full-height glass fibre filter is quickly and easily reached for cleaning and replacing. (B) The huge full-width cooling coil offers extra cooling and dehumidifying surface for hottest, muggiest days. (C) Adjustable grilles provide proper air flow in

any room. (D) The Twin Meter-Miser compressors are the same type used in millions of Frigidaire Refrigerators. They're the simplest refrigerating mechanisms made and are warranted for five years. (E) Thermostatic controls are available for automatic operation of all models (where utilities permit). On the Twin units, thermostats are available as factory-installed equipment or they can be installed on the job in a matter of minutes.

Can now be mounted flush with drapes to take no space in room

The popular demand for flush mounting is ideally met with this wonderful Frigidaire appearance extra. There is no interference with proper air flow and distribution. No bolts are needed in outside walls. It's a perfect answer to all competition and gives salesmen another tool to clinch sales quickly and easily.



CUSTOMERS ARE EASILY SOLD AND STAY SOLD ON THESE OTHER OUTSTANDING FEATURES

Scores of other competitive advantages help make the selling job easier, help assure lasting customer satisfaction.

Super Quiet

Just turning the unit on for a prospect will show him how the noise-free operation of a Frigidaire Room Conditioner will never get on his nerves or interfere with sleep. That's because of Frigidaire's whisper quiet fan and extra-heavy acoustical insulation.

The Only 1-Horsepower Model Made for 115-volt operation

Here's another big advantage with a Thrifty Twin that can be converted to sales. Because of the two separate compressors a full one-horsepower unit can be operated on 115-volt current. In many cases, this will eliminate the extra cost of putting in 220-volt service. That's a

real savings of \$75.00 to \$150.00 on initial cost that no other make of room conditioner can match.

Easy to operate

Simple master control that even a child can operate tunes instantly to any outside weather condition. The prospect can see in an instant how easy it is to enjoy complete comfort—cooling, dehumidifying, filtering, ventilation, circulation and stale air exhaust—that can take all the curse off summer weather and provide a new standard of healthful, clean, crisp refreshment.

Beautiful Appearance

Streamlined all-steel cabinet finished in rich Coca Rio Beige will harmonize perfectly in any surroundings. Or, being steel, it can be easily repainted any color to match prospect's specific decorating plans when desired.

NEW HIGH-FLOW HEAT AVAILABLE

New Silver Anniversary models are available to supply supplementary heat for all season use. Thrifty Twin Room Conditioners can be equipped to produce instant warmth when needed. This means year 'round utility—a real help in pre-season selling drives. Heating is independent of cooling systems and has many easily demonstrated safety and operating advantages.

Yes, for every competitive selling feature, Frigidaire has a better answer. In these new Silver Anniversary models dealers can offer everything . . . plus scores of exclusives not available in any other make.

Big Ad Campaign Sparked By New Godfrey Night-time TV Show



Prospects will be pre-sold by Frigidaire's greatest room conditioner advertising campaign with a big new Wednesday night TV show, with big full color ads in Life and Saturday Evening Post, and with Arthur Godfrey's morning TV and radio program. Every Frigidaire Dealer will get the benefit of powerful national advertising to support his local selling and merchandising activities.

New ARI Standards Cover Many Products--

(Concluded from Page 1, Col. 3)

Tentative standard for water-cooling towers for use with refrigerating equipment is priced at 50 cents. Included are towers of the mechanical draft and natural draft types for either air conditioning or refrigeration applications.

AMMONIA CONDENSERS AND RECEIVERS

Tentative standards for ammonia condensers and receivers carry a \$1 price tag. They include ammonia evaporative condenser units, construction and performance of ammonia condensers of vertical open shell-and-tube type, construction and performance of ammonia condensers of the horizontal closed shell-and-tube type, and ammonia liquid receivers.

Tentative standards for "Freon" condensers and receivers are available at 50 cents. Included are "Freon" evaporative condenser units, "Freon" water-cooled condensers, and "Freon" liquid receivers.

Tentative standards for water and brine coolers, another 50-cent booklet, covers construction and performance of ammonia brine coolers of the horizontal closed shell-and-tube flooded type and "Freon" water and brine coolers.

Tentative standard for application of refrigerant heat transfer equipment is priced at 35 cents.

This standard applies to heat transfer equipment of the shell-and-tube or shell-and-coil type when supplied as separate equipment; and to such heat transfer equipment when supplied as part of unitary equipment for use with compressors of 25 hp. and larger. It applies to water coolers, brine coolers, and condensers using ammonia or "Freon" as a refrigerant.

Standard nomenclature for reciprocating compressors is available for 35 cents.

Standards for ammonia compressors and compressor units, priced at 50 cents, covers enclosed ammonia compressors of the vertical single-acting type, performance of ammonia compressors of the vertical single-acting type, standard equipment for ammonia condensing units, and high speed ammonia compressors.

'FREON' COMPRESSORS AND CONDENSING UNITS

Standards for "Freon" compressor and condensing units, 25 hp. and larger, are priced at 35 cents.

Also priced at 35 cents is the standard for application and installation of compression refrigeration systems. This standard applies to mechanical compression refrigeration systems of the type commonly designated as central station systems and using centrifugal, rotary, reciprocating, or other mechanical

compressors. It does not apply to factory assembled package systems.

Standards for insulation for cold storage rooms, location and inspection of data plates on insulated refrigerant-containing vessels, and steel and wrought iron pipe is available for 35 cents.

The tentative application engineering standard for year-round residential air conditioning costs 50 cents.

Not part of the standards set, two collateral publications are available from ARI at \$1 each. They are "Properties of Commonly-Used Refrigerants" and "Application Engineering Standard for Air Conditioning for Comfort."

Lee Clark Retires --

(Concluded from Page 1, Col. 4)

made advertising and sales planning manager.

Born and educated in Indiana, Clark became a salesman for the Metropolitan Life Insurance Co. in Kokomo in 1915. Upon return from overseas service as an officer in the Army in World War I, he joined S. F. Bowser and Co. in Ft. Wayne as a salesman, later becoming assistant district manager. From 1924 to 1928 he was advertising and sales promotion manager for the Ft. Wayne Tank and Pump Co. He served as general sales manager for the Ft. Wayne Engineering Co. for one year before joining Frigidaire.

Unarco President -- G-E Cooling Record--

(Concluded from Page 1, Col. 3)

against \$2,825,000 for the first quarter of 1953. Hokin steps into the presidency of the company after serving as vice president in charge of the heating and cooling division. He was responsible for the organization of this branch of the company during the past year.

Air conditioning products range from a mobile unit to large capacity water-cooled commercial and industrial package types, highboy models, and ceiling-suspended air conditioners.

Naylor, who has served as president of the company for four years, told stockholders that the increase in sales, while counter to the general trend of business, was the result largely of the efforts of the new heating and cooling division which was not in existence during the first quarter of 1953, adding:

"However, the increase was not due entirely to the heating and cooling division as some of the other branches of our business have shown increases in sales during the first quarter of 1954. At the same time we have been shifting from the manufacture of certain items that have proved to be unprofitable, discontinuing these lines and concentrating on those products that will add to our net or which hold promise of doing so in the near future."

The company is a leading producer of fibrous products including heat insulations, packings, gaskets, and textiles in which glass or cotton fibers are used in combination.

In addition, it manufactures steel bulkheads, floors, and air-circulating fans for railroad refrigerator cars, freight car hand brakes, doors and frames, highway transport refrigeration units, and package-type steel buildings.

The election of Hokin signals the further development of the heating and cooling division, according to Naylor.

Hokin is a graduate of Morgan Park Military Academy. He attended the University of Illinois and started his business career in the warehouse of International Rolling Mills Products Co.

He later became a salesman in this organization and eventually was elected executive vice president. He left International Rolling Mills to head the Nikoh Tube Co., a division of International.

He served in this position for seven years prior to joining Union Asbestos & Rubber Co. on May 1, 1953, as vice president. He has served on the board of directors of Union Asbestos & Rubber Co. since April, 1949.

(Concluded from Page 1, Col. 3)

helped us boost production to meet this demand and still another plant will be added during the second quarter. Plans are under way for further expansion in the next several years.

"The air conditioning industry is one of the bright spots in the nation's economy," said Van Poppelen. "The words 'slump' and 'recession' are unknown in the industry today. Seasonal changes, too, are being minimized by new merchandising techniques. In our own case, we sold more packaged air conditioners in December and January this winter than in July and August of last year."

Van Poppelen said that one of the indicators pointing to an excellent year for air conditioning in 1954 is the fact that dollar volume of commercial and residential construction for the first quarter is up from 1953 levels and should continue relatively high throughout 1954.

"Higher construction figures are almost synonymous with higher air conditioning figures," he noted, "because no commercial building is considered truly modern today unless it is air conditioned. The same trend is evident in the residential field. However, the air conditioning industry can expect to move ahead much faster than new construction because of the big market in existing buildings. Last year about 50% of residential air conditioning installations were made in existing dwellings. In the commercial field approximately three-quarters of all units were installed in present structures, and the increasing trend to packaged equipment is giving further impetus to air conditioning of existing commercial buildings and factories."

The G-E official predicted a continuing bright industry outlook and noted almost unlimited room for growth. He cited present central air conditioning saturation of only 1/10 of 1% of all wired homes and predicted that in 10 years eight out of 10 new homes of average price would be centrally air conditioned.

New types of equipment share in the growing public acceptance of air conditioning, said Van Poppelen.

"Sales of heat pumps, the all-electric air conditioners that heat and cool without using fuel, are forging ahead," he said. "In our own case, since introducing the Weathertron heat pump early in 1952, our sales have accelerated so that first-quarter figures this year are 400% of last year's first-quarter sales."

MUST READING

for the residential air conditioning trade!



Thermal and acoustical insulation of ducts can "make or break" an air conditioning job. That's why Gustin-Bacon, manufacturers of glass fiber duct insulation for air conditioning, has prepared a new booklet offering suggestions of value to oldtimers, as well as newcomers in the field. Write for your free copy today.

Answers such questions as these . . .

- "Which ducts require thermal insulation?"
- "When should I use a duct insulation with a vapor barrier?"
- "What kind of acoustical treatment do ducts require?"
- "What are the fastest and cheapest methods of applying duct insulation and duct liner?"
- "Do combination units require special duct insulation?"

Mail This Coupon Today!

- ☐ Please send me your new "How-To-Do-It" folder on duct insulation and duct liner for residential air conditioning.
- ☐ Please send your brochure on Ultralite Duct Insulation and Duct Liner for commercial and industrial air conditioning.

Name _____

Firm _____

Address _____

City _____ State _____

ULTRALITE DUCT INSULATION
(Thermal)
and
ULTRALITE DUCT LINER
(Acoustical)

are insulations of long glass fibers specifically designed for air conditioning application. They are light, flexible, resilient, easy to cut with a knife. "Job size" packages are stocked in 72 cities for prompt delivery. Consult the yellow pages for name of your nearest Ultralite distributor.



GUSTIN-BACON MFG. CO.

226 W. 10th St., Kansas City, Missouri

New York • Chicago • Philadelphia • San Francisco • Los Angeles
Houston • Tulsa • Dallas • Detroit • St. Louis

MANUFACTURER'S AGENTS—DEALERS

Here's A New Opportunity For Profits!

- NEW DESIGNS
- REDUCED PRICES
- NATIONALLY ADVERTISED

... SCHMIDT Refrigerated Display Cases

If you're looking for a new or better line of refrigerated display and storage cases sold to the food, institutional and allied fields. . . .

If you're the type of salesman who likes to sell a quality product and has already discovered that extra effort means extra sales and extra income. . . .

We sincerely believe the Schmidt Line for 1954 offers a real opportunity. We have some excellent territories open and would like to give you the details.

Write today for complete information.



THE C. SCHMIDT COMPANY

1712 JOHN STREET — CINCINNATI 14, OHIO

Supplying the Food Industry for 84 Years

LOOK WHAT CAN HAPPEN TO THE WOOD IN COOLING TOWERS



Unprotected cooling tower redwood
RESULT OF CHEMICAL ATTACK



Unprotected cooling tower redwood
RESULT OF FUNGUS ATTACK

UNRETOUCHED PHOTOGRAPHS

PRESSURE CREOSOTING ADDS YEARS OF LIFE TO HALSTEAD & MITCHELL COOLING TOWERS



UNTREATED ROUGH-CUT WOOD

is subject to immediate attack by fungus and marine parasites, leading to quick rotting. It is also subject to chemical deterioration from acids in water. Rough-cut wood is the best material for the wetted deck of a cooling tower because it "wets" more effectively than any other material . . . but unless it is protected, its life is apt to be short, indeed. All wood used in Halstead & Mitchell Cooling Towers is protected wood.

PRESSURE-CREOSOTED WOOD

adds years and years of life to your cooling tower. Why? Because creosote contains 162 elements toxic to fungus growth and parasites. It also makes wood more resistant to chemical attack. It is the most permanent and positive preservative used to treat timber, *tested by over 100 years of use*. Koppers Pressure-Creosoting provides deep penetration of the wood . . . not just surface protection.

The protection afforded means Halstead & Mitchell alone offers the 20-Year Guarantee on the Wetted Deck Surface against rotting due to fungus growth!

ONLY HALSTEAD & MITCHELL OFFERS THE

20-Year Guarantee!

on the wetted deck surface against rotting by fungus attack

NO EXTRA COST—CHECK PRICES TODAY

The extras in Halstead & Mitchell Cooling Towers are extras in service and life . . . not in price. Price-wise H & M Residential Cooling Towers have thrown open huge segments of the home and small building market to air-conditioning. Halstead &

Mitchell Industrial Cooling Towers are known nationally for initial and operating economies. And all Halstead & Mitchell Cooling Towers offer the exclusive 20-Year Guarantee against rotting by fungus attack.

FAMOUS HALSTEAD & MITCHELL QUALITY

The protection against rotting by fungus attack is only part of Halstead & Mitchell's quality story. When you buy, check . . . electrically welded sheet-steel cabinets with *individual* coatings of Vinsynite, Vinyl Zinc and chlorinated rubber, to add important years of life and eliminate electrolytic or galvanic action . . .

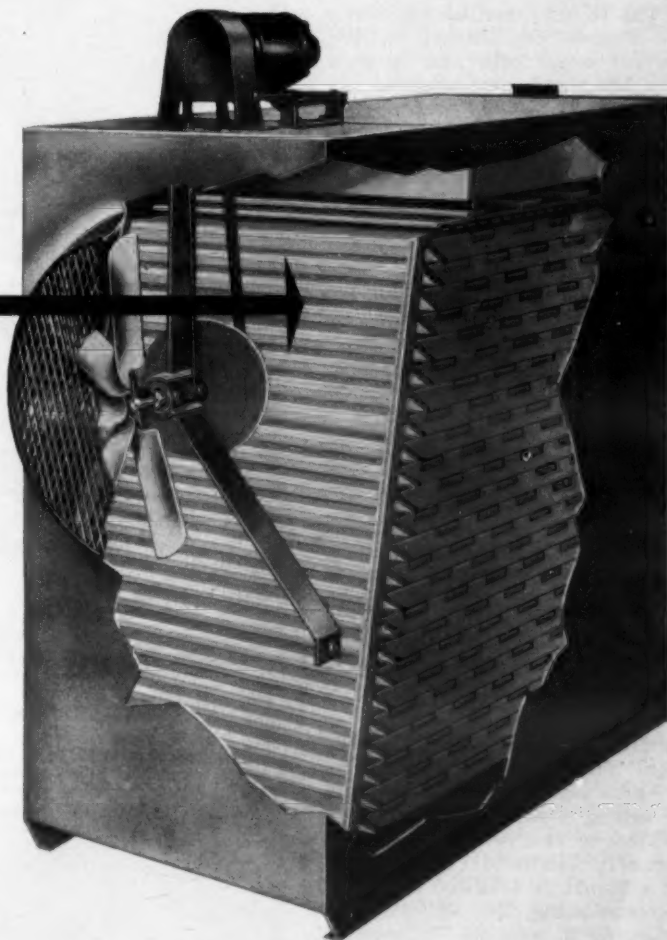
stainless steel fans and shafts . . . weather shielding against ice and rain for outdoor operation . . . gravity-type distributing pans which eliminate windage losses since atomizing by spray nozzle is unnecessary . . . Everdur Bolts throughout for ease of disassembly after years of service.

2 thru 100 Tons

At Leading Refrigeration & Heating Wholesalers Everywhere

OFFICES: BESSEMER BUILDING • PITTSBURGH 22, PA.

HM
Halstead & Mitchell



Chicago Electric Assn. Plans 'Largest' Promotion For Air Conditioning

CHICAGO—The local Electric Association recently announced plans for what it said will be the largest air conditioning promotional program ever attempted in this area.

The group said an exhibit of room air conditioners, central cooling units, and dehumidifiers will be staged at the Marquette building of the Edison Co. from May 10 to July 16. Special crowd-drawing features are to include a "Weather Prophet Contest" and an air conditioning "clinic."

In the Weather Prophet Contest, prizes totaling \$1,500 will be awarded to those correctly predicting the temperature on July 4, 1954.

Advertising prominently placed in metropolitan newspapers will tell the story of air conditioning and invite the public to visit the "tremendous display of air conditioning units and dehumidifiers," according to the association.

Questions regarding the use of air conditioners in homes and offices will be answered at the "clinic" to be established at the exhibition. This feature is to be widely advertised.

Between 15 and 20 distributors are expected to take part in the promotion. J. A. Bilheimer of Philco Distributors, Inc. is chairman of the association's air conditioning committee.

Minnesota's Enthusiasm For Room Conditioners Breaks Tradition

ST. PAUL—Minnesota has broken its traditional resistance against the purchase of room air conditioners, declares James V. Gaynor, regional manager of the Mitchell Mfg. Co., Chicago.

Gaynor reached this conclusion after a recent Mitchell meeting in St. Paul drew five times the number of appliance dealers who attended a similar session in 1953. The meeting was devoted strictly to air conditioners, covering no other Mitchell products.

Seventeen dealers signed up for from four to six units apiece at the end of the three-hour evening meeting.

"It was phenomenal," Gaynor said. "Until now, dealers held back on any orders until the height of the air conditioning season."

The St. Paul meeting was held at the Thermal Co., Mitchell distributor for Minneapolis and St. Paul. The 132 people who attended represented 81 dealers within a 50 mile radius.

In view of the St. Paul success, Gaynor scheduled four other area meetings for late March and early April, in Eau Claire and La Crosse, Wis., and Rochester and Mankato, Minn.

Another sign that Minnesota has arrived as a room air conditioner market is the factory service depot at M. B. Marx Co., Minneapolis, set up by the Thermal Co. for its dealer customers.

This depot, said to be the first of its kind in the state, will handle all repairs on units sold by local Mitchell dealers.

Depot personnel also will provide dealer training on installations, operations, and any technical problems that may arise among retailers.

Loveman's Air Conditioned

BESSEMER, Ala.—Fully air conditioned, Loveman's Department Store has just opened for business here. With 20,000 sq. ft. of selling area, the new store is located in the two-story building formerly occupied by Erlick's. Approximately \$250,000 was spent in remodeling the building and equipping it with new fixtures.

NARDA President Urges Economic Studies As Basis for Determining Dealer Discounts

WICHITA, Kan.—Economic studies based on a responsible sample of retailers' operating experiences should be the basis for determining dealers' gross profits, Vergal Bourland, president of the National Appliance & Radio-TV Dealers Association, told 500 dealers at the annual meeting of the NARDA state affiliate, Kansas Appliance Dealers Association at the Broadview hotel here recently.

"Dealers' profits in manufacturers' suggested list prices should not be based on competition's lowest prices minus manufacturers' cost and markup and distributors' cost and markup," Bourland said.

"Nor should they be based on what dealers got last year minus what the price chisellers gave away. They should be put where

they make sound business sense."

He urged the dealers to consider the gamble that manufacturers take in production facilities and materials and long-range output commitments—especially with the decline in outside contracts—before criticizing them; and further, to work for harmony with them.

"Let your supplier know you're on his team by a friendly attitude toward him and his representative," he declared. "Don't carry everyone else's line. Put some real store identification and sales effort behind his product. Go along with his line-up of promotions; don't try to pick just one or two a year."

"Help him sell his quota including those models that are extra hard to sell. Don't carry one line this year and another next year."

Show Auto Cooling Equipment At Detroit Controls Meetings

DETROIT—A series of 34 refrigeration and air conditioning meetings is currently being held by Detroit Controls Corp. on the eastern seaboard.

Purpose of the sessions is to acquaint retailers, wholesalers, shop service personnel, and automobile dealers with up-to-date mobile air conditioning equipment.

A novel demonstration instrument panel will show the wide variation of operating conditions encountered. Meetings end May 27.

Detroit Controls is one of the major suppliers of air conditioning controls for automobile makers.

Furniture Store Cooled

CHARLESTON, W. Va.—The Kanawha Furniture Co.'s store at 506 Virginia St. here has been completely remodeled, redecorated, and air conditioned.

Toy Animals Play Prominent Part In New Thor Promotion

CHICAGO—Appliance shoppers will find elephants, horses, dogs, and monkeys in Thor washers and dryers these days. The animals—children's toys—are the basis of Thor Corp.'s spring promotion, "The Greatest Washing Show on Earth—With the Miracle Washing Menagerie."

Thor's promotion is designed to prove that Thor machines wash and dry all fabrics—natural and synthetic.

Thor retailers will demonstrate the versatility of Thor machines during the promotion by washing the "Miracle Washing Menagerie"—toy animals of Orlon, Dacron, nylon, rayon, and cotton.

One of the animals, a rayon plush bear, will be offered as a gift to shoppers who watch a demonstration. Premiums for purchasing Thor equipment are offered.

Buyers market? SERVEL



REFRIGERATION

Servel dealers are really ready! The buyer's market means MORE, not less, VOLUME for them! Because now it takes a refrigerator that's really different to turn a prospect into a customer! It takes features, not just talk, to close the sale... and Servel dealers have the greatest array of product advantages ever offered the consuming public!

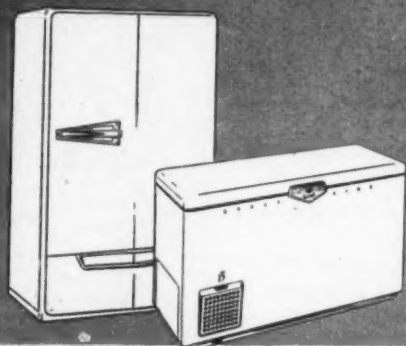
Only Servel Dealers Offer a Refrigerator with NO MESSY ICE TRAYS!

Makes Ice Cubes without using Trays... and puts 'em in a basket AUTOMATICALLY!

Only Servel Dealers give customers choice of GAS or ELECTRIC!

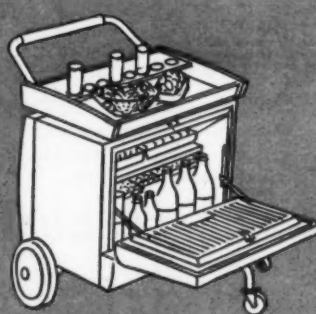
ONLY SERVEL DEALERS OFFER ALL THESE GREAT FEATURES!

- Separate freezer compartment—holds up to 80 lbs.!
- Automatic defrost—completely carefree!
- Adjustable shelves—effortlessly changed!
- Butter keeper—full pound at right temperature!
- Door shelves—roomy, wide, convenient!
- Trip-saver handle—opens at a nudge!
- Longest warranty—up to ten full years on freezing system!
- 3 appliances in 1—refrigerator, freezer, ice-maker!



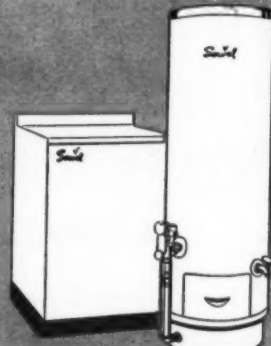
ELECTRIC FREEZER NEWS!

Both upright and chest type Servel electric freezers have Cold-Seal Construction. A great sales-closer! 9 to 22 cubic feet capacity.



WONDERBAR PROFITS!

Only Servel dealers profit in this new, unsaturated appliance market! Makes ice cubes! Chills snacks and drinks! Perfect for offices, dens, bedroom, living room, patios!



AUTOMATIC WATER HEATERS!

Both electric and gas backed by the biggest name on any water heater. New electric table top model helps you build a profitable automatic water heater business with Servel!

Can a Dealer Outguess the Weather?

That's the Way Room Air Conditioners Are Being Merchandised Today, Says One Observer Who Suggests Different Approaches

NEW YORK CITY—The air conditioning business is bound to boom all right, but it will be a bigger and more profitable boom for all elements if "four failures in merchandising strategy" are corrected, states P. Bernard Nortman, writing in the April 1 issue of *Sales Management* magazine.

Nortman is an economist for Lever Bros. Co., who has surveyed marketing problems of the air conditioning and other industries. (Some of his studies were published in *AIR CONDITIONING & REFRIGERATION NEWS* in the past two years).

If the industry—particularly the room air conditioner part of the business—is to mature and pros-

per, it must overcome four major obstacles, he states in his *Sales Management* article. Briefly these are:

1. *Seasonal Nature of Sales:* For the nation as a whole, almost 65% of room air conditioners are sold in June, July, and August. Almost 80% are sold between May and December. Sales by regions show an even greater concentration in many areas than these nationwide figures.

2. *Dealer Reluctance:* Consciously or not, dealers still hesitate to accept air conditioners. Because of the traditional short selling season in heavily populated areas, dealers view their inventories with uneasy concern, hoping

for an early, protracted heat wave. If the heat wave fails to materialize or arrives late in the season, prices are drastically cut to get the stock moving. If and when the heat wave does come, a landslide business can exhaust stocks in 10 days, leaving dealers in the position of being unable to meet demand.

The loss is therefore twofold; first from the early season price cutting, then from short supply. What is so unpredictable as the weather? Yet the success of the home air conditioning business depends to a great extent on the dealer's ability as a weather prophet.

3. *Retail Chaos:* Again because

of the short selling season, manufacturers and retailers urge every Tom, Dick, and Harry who has a store to take on a line of air conditioners. Air conditioners are offered as a sideline in electrical, plumbing, furniture, luggage, typewriter, auto parts and repair, and radio and TV shops, in addition to the usual appliance stores. Price cutting, low profits, and substandard installation and services result from this indiscriminate choice of dealers.

The sale of a technical apparatus by untrained dealers not only inconveniences the public but blackens the reputation of a commodity which is basically one of man's great benefactors. Too often, wrong-size units are sold and improper instructions given by dealers inadequately trained to make proper surveys.

4. *A Luxury, Impulse Item:* Present emphasis continues to be on brand, company, color, ease of installation and operation, dis-

counts, comfort. The industry has not been able to rid its mind of the false logic that because its primary value is of a seasonal nature the home air conditioner must remain in the luxury class. If, for example, the refrigerator industry had operated on that premise, we would still be using iceboxes in the summer and window units in the winter.

Inadequate as the measures are, there is evidence that the industry is beginning to appreciate the need for remedial steps. Most conspicuous perhaps is the sight of an air conditioner on a cold, blustery March day. In fact, air conditioners may soon replace the robin as the harbinger of spring.

What's Being Advertised

An examination of this year's pre-season advertising, Nortman says, shows that stress is laid on three features:

- 1) off-season discount or free installation or both;
- 2) institutionalization of a particular company name;
- 3) the heater that comes with the cooler put out by a number of companies.

Companies are giving discounts to dealers who take early shipments and in turn dealers can and do offer a customer discount for spring purchases.

That the industry proposes an official resort to pre-season price cutting is evidence of a lack of confidence in its product, Nortman declares. It would be hard to conceive of, say, the automobile industry offering a pre-season price discount in the absence of a serious business recession.

It is Nortman's contention that for the air conditioning industry to overcome the chaos in sales conditions, distribution, service and installation practices and to sell air conditioners throughout the year as a standard product for the home without resort to serious price cutting, its marketing and merchandising must become concerned chiefly with the health-utility-efficiency concepts rather than the present palliatives to move an impulse-comfort luxury item.

Better in Big Unit Field

Tradition for this approach exists in commercial and industrial air conditioning advertising which appeals directly to the primary interests of its customers: increase in sales; higher productivity; year-round operations; protection of materials and records; reduced absenteeism; etc.

A sampling of the 1954 dealer promotional portfolios of eight companies, both for off-season and regular 1954 advertising and some of the 1953 advertising, compared with the analysis made by Nortman of 1951 newspaper advertising published in *AIR CONDITIONING & REFRIGERATION NEWS* shows some but not much development along the health-utility-efficiency line.

A number of current advertisements boldly proclaimed the health-utility line, the author says, but on the whole, where direct appeal is made to health, it is limited to hay fever and asthma sufferers.

On the top executive level there is often understanding of the relation between air conditioning and man's ever higher standard of living, Nortman attests. This thinking, however, is only trickling down to the wholesale and retail echelons which are still permeated with the comfort-luxury notion from which they derive their promotion and advertising ideas.

"What is missing, even in the advertising of the few companies that are undertaking to promote the health-utility-efficiency concept," he declares "is the intense educational campaign necessary to transform public thinking from the luxury to the necessity viewpoint."

"Professional copy-writers, not only for the air conditioning industry, but for the newspapers and magazines, must themselves become imbued with the utility concept to effectuate the transition in public thinking."

Dealers are ready!

AIR CONDITIONING

Rock-Bottom Priced ¾ h. p. Servel Tops in the Budget-Price Market!

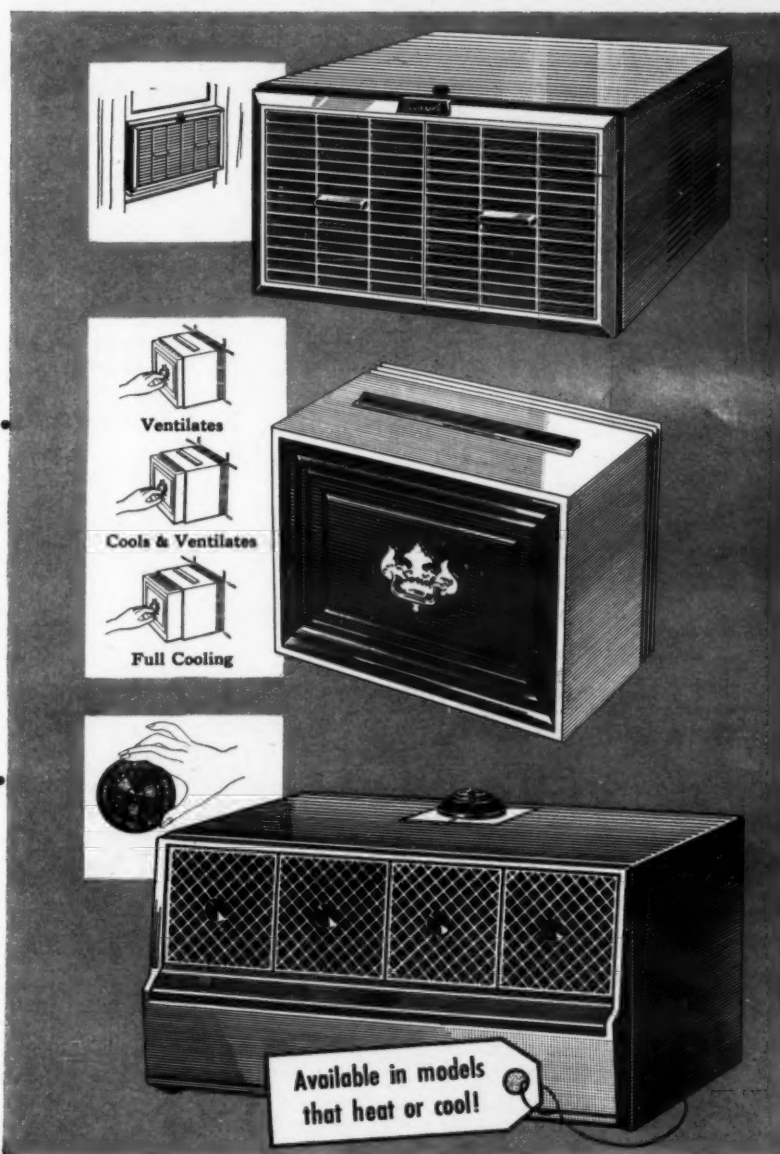
Priced to give Servel dealers a tremendous competitive advantage! Cools, dehumidifies, filters and circulates air! 3-way directional grill for draft-free circulation! 1-dial control! Flush... extends only 5 inches into room! Blond all-metal cabinet.

Servel Dealers Dominate Casement-Window Market with ½ and ⅓ h. p. Models!

Require no window remodeling! No installation extras! Automatic drawer-pull control—no dials! Blond cabinet with mahogany drawer. Handsome brass pull!

Handsome! Super Quiet Servel for Big Volume in the Medium-Price Field!

¾ h. p. and 1 h. p. Servel! Handsomest air conditioner made! Draft-free! 1-dial control! Available in units that heat as well as cool! Special turn-down for perfect sleeping—no chills! Blond and mahogany decorator cabinets!



MAIL THIS COUPON TODAY!

to: Servel, Inc., 119 N. Morton Ave., Evansville 20, Indiana.
Have the Servel distributor nearest me rush full information on Servel's 1954 products and merchandising plans!

NAME _____

ADDRESS _____

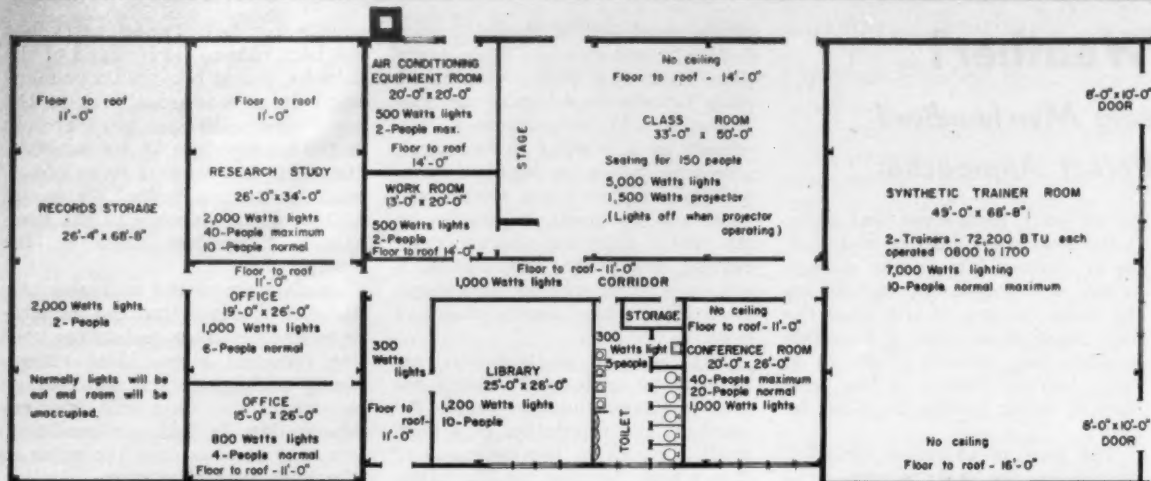
CITY _____ STATE _____

Dept. ACR419

Servel

The name to watch for great advances in
REFRIGERATION and AIR CONDITIONING

Servel Inc., Evansville 20, Indiana
In Canada, Servel (Canada) Ltd., 558 King St. W., Toronto, Ontario



PLAN view shows layout of the "typical synthetic trainer building" which industry engineers air conditioned (on paper) at the United States Air Force Refrigeration and Air Conditioning Engineers' Conference.

Engineers at Air Force Technical Conference Design Cooling System for Typical Building

WASHINGTON, D. C. — Recent four-day conference for its refrigeration and air conditioning engineers staged at the Pentagon here by Headquarters, United States Air Force, represented a new departure for such meetings.

Representatives of four different manufacturers (three of whom are competitors) combined their engineering talent to design jointly the air conditioning system for a typical Air Force structure.

The project served as a concrete example for specific application of the general theory and practice of air conditioning which the four speakers reviewed at length during the sessions.

As arranged by Conference Director Wm. T. Smith of the U.S.A.F. Directorate of Installations, the speakers discussed, in that order, "B.t.u. Load Calculations," "Equipment Selection," "Equipment Arrangement," and

"Control Systems," devoting half a day or better to each subject.

James H. Carpenter, Director of Engineering Training for Carrier Corp., handled the load calculations.

R. A. Gonzalez, director of application engineering, Airtemp Div., Chrysler Corp., was responsible for equipment selection.

C. J. Brillinger, director of training and education, York Corp., detailed the problems of equipment

arrangement, including duct sizing.

J. H. Broome, executive assistant to vice president, Minneapolis-Honeywell Regulator Co., outlined methods of control.

One other talk was given at the Air Force conference by a speaker from the industry. S. F. Duncan, director of research and development for the Farr Co., presented a lengthy analysis of evaporative cooling systems. His talk, however, was not related to the other four.

[This talk has been published in the NEWS in three instalments, appearing in the April 5, 12, and 19 issues.]

Problem posed by Smith for the first four speakers was to air condition a "typical synthetic trainer building." As the name implies, this building provides facilities for simulating planes and flight conditions to train Air Force pilots.

Included in the structure are two synthetic trainers such as produced by Link, a class room, conference room, library, offices, research room, records storage, etc.

Floor plan is shown in the accompanying illustration. Details of the building will be given in the course of publishing the papers presented at conference.

Load Calculations—1

Theory and Practice of Making Cooling, Dehumidifying Estimate Outlined

Editor's Note: This is the first instalment in a series of articles presenting the papers given at the recent Refrigeration & Air Conditioning Engineers' Conference held by Headquarters, United States Air Force at the Pentagon in Washington, D. C.

A general outline of the conference is presented in the story in the accompanying columns.

Below begins the paper on "B.t.u. Load Calculations." Following publication of this paper; the remaining three papers in the series will be published in the order presented at the conference.

**By James H. Carpenter, Director, Engineering Training
Department, Carrier Corp.**

The cooling and dehumidifying estimate is done for a two-fold purpose, having as its objectives the determination of the total heat gain to the space to be conditioned and the determination of the required air quantity to offset that gain. The estimate is a prerequisite to equipment selection. It provides data which when properly analyzed permits selection of the proper type equipment and establishes the most suitable control method.

If the desired room temperature is to be maintained, sensible heat must be removed at precisely the same rate at which it is released to the space, and, simultaneously, if control of humidity of latent heat is to be maintained, a similar balance between its removal and release must be established.

The accuracy of the cooling and dehumidifying estimate is, to a large degree, dependent on the completeness and accuracy of all data pertinent to the load calculations.

The cooling load estimate is much more complex than a heating estimate. In the case of heating,

the need is to sum up the transmission and infiltration or ventilation loads which must be offset by the heating system at design conditions. Heat gain from internal loads and sun effect are usually neglected and their presence results in reduced fuel consumption.

In other words, these sources of heat all help the heating system and therefore represent safety factors when they exist.

The cooling estimate, in contrast, must account for all items of load which would have the effect of increasing the room temperature or humidity above selected limits. In this case loads of any significance must not be neglected; otherwise a penalty in room conditions will result.

Before an accurate cooling load summary may be made, a great deal of information regarding the structure and its use is required. At this point, let us make a more detailed examination of the source and types of load which are usually involved.

Sources of heat can be classified
(Continued on next page)

refrigeration on the move



Perishable cargo protection and passenger car comfort demand failure-free refrigeration and air-conditioning control. Your assurance of this kind of trouble-free service, for refrigerator truck, car or bus, is found in automatic controls made by General Controls.

General Controls' RV-1 Mobile Refrigeration Valve, for example, originally designed and engineered to meet aircraft specifications for continuous, dependable operation under conditions of rough usage and heavy vibration, is rugged, compact and lightweight. This electro-magnetic valve is multipositioned (operates in any position) handling Freon 12 and Freon 22 refrigerants. Available with continuous duty and weather resistant solenoid with single automotive terminal, the RV-1 delivers positive valve control of refrigerants on mobile refrigeration and air-conditioning equipment.

GENERAL CONTROLS

Plants in: Glendale, Calif., Burbank, Calif., Skokie, Ill.
Factory Branches in 37 Principal Cities
SEE YOUR CLASSIFIED TELEPHONE DIRECTORY



*The registered tradename hi-g applies to a complete line of high vibration resistant controls manufactured by General Controls originally designed for aircraft application.

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.

COOLING ESTIMATE

SHEET No. 2
ESTIMATED BY U.H.C.

PROPOSITION NO. U.S.F.-TC-54
ORIGINAL DATE 12/10/53

JOB NAME SYNTHETIC TRAINER BLDG.
ADDRESS Room N° 2
SPACE USED FOR CLASSROOM
Size 33' X 50' = 1650 sq ft X 14' = 23,100 CC

ESTIMATE FOR 3rd P.M. PEAK A.M. TO A.M. Day of Week
CONDITIONS DB WB %RH DP gr per lb
Outside 75 73 118.0
Room 80 67 50 77.0
Difference 15 X X X X X X X X 91.0

Item	Quantity	Difference	Factor	Btu per hr
SUNLIGHT GAIN				
W Glass	sq ft X	F X	X	
E Glass	sq ft X	F X	F X	
N Glass	sq ft X	F X	F X	
E Glass	sq ft X	F X	F X	
Skylight	sq ft X	F X	F X	
Roof	<u>1650</u> sq ft X <u>56</u> X	<u>.14</u>		<u>13,000</u>
TRANSMISSION GAIN				
All Glass	sq ft X	F X	F X	
W Wall	sq ft X	F X	F X	
E Wall	sq ft X	F X	F X	
N Wall	<u>700</u> sq ft X <u>3</u> X	<u>.41</u>		<u>860</u>
E Wall	sq ft X	F X	F X	
Partition	<u>280</u> sq ft X <u>10</u> X	<u>.41</u>		<u>1,150</u>
Ceiling	sq ft X	F X	F X	
Floor	sq ft X	F X	F X	

SELECTED ROOM CONDITIONS	DB	WB	%RH
VENTILATION			
People Heat	X	cfm/Person	
People Latent Heat	X	cfm/Person	
People Sensible Heat	X	cfm/Person	
		cfm Ventilation	
INFILTRATION			
Ingoing Doors	People X	cfm/person	
Open Doors	Doors X	cfm/door	
Exhaust Fan			
Crack	Feet X	cfm/ft	
		cfm Infiltration	
'OUTSIDE AIR THROUGH APPARATUS			
DEHUMIDIFIED AIR			
(1-in.B.P.) X (R/F Rat. Y - 33) App.DP) =	<u>24.3</u>	Dehumidifier Rise	
<u>70.5/10</u>	Room Sens.		
<u>1.08</u> X <u>24.3</u>	Dehumidifier Rise	= <u>26.90</u>	cfm.

* Correlation of cooling design and heating design is essential and a study of the heating estimate should be made at this time.

INFILTRATION AND OUTSIDE AIR				
Infiltration	cfm X	M	1.08	
Outside Air	cfm X	M	BF X 1.08	
INTERNAL HEAT				
People	<u>150</u> People X	<u>195</u>		<u>29,300</u>
Lights	sq ft X	Watt X	3.4	<u>17,000</u>
Equipment	sq ft X	Watt X		
Room Sensible Heat Sub Total				<u>61,310</u>
Storage	sq ft X	X		
Supply Duct Leakage Loss	5% + Supply Duct Leakage Loss	Sub Total after Storage Factor		<u>9,200</u>
Room Sensible Heat				<u>70,510</u>
ROOM LATENT HEAT				
Infiltration	cfm X	gr per lb X 0.68		
Outside Air	cfm X	gr per lb X 0.68		
People	<u>150</u> People X	<u>195</u>		<u>23,300</u>
Steam	X	lb per gal X 1000		
Room Latent Heat Sub Total				<u>23,300</u>
Supply Duct Leakage Loss	5% + Supply Duct Leakage Loss	Sub Total after Storage Factor		<u>1,800</u>
Room Latent Heat				<u>24,500</u>
Room Total Heat				<u>95,010</u>
OUTSIDE AIR HEAT				
Sensible	cfm X	F X (1-in. B.P.) X 1.08		
Latent	cfm X	gr per lb X (1-in. B.P.) X 0.68		
Return Duct Moisture Gain	Return Duct Moisture Gain	Grand Total Heat Sub Total		
Moisture Gain	% + Latent Gain	% + Latent Gain		
TOTALS				
GRAND TOTAL HEAT				
SEMI HEAT FACTOR				
INDICATED APP. DP				

NOTES

FIG. 1 shows cooling estimate form that was used in figuring load on synthetic trainer building.

Estimating Load Requires Detailed Study Of Many Sources of Heat In Structure

(Continued from preceding page) into two basic types: sensible and latent. Sensible heat, as the name implies, makes its presence known by an increase in temperature.

Sensible heat gain may result from external or internal sources. Let's look at a brief summary:

External.

Sunlight gain—walls, roofs.

Sunlight gain—glass.

Transmission—shaded walls, etc.

Ventilation air and/or outside air infiltration.

Internal.

Transmission—partitions, floors, ceilings.

Lights.

Appliances—laboratory, cooking, etc.

People—number, degree of activity.

Power—machines, motors.

Process work.

Latent heat, as its name implies, is more subtle or evasive than sensible heat and many times is not given the attention it deserves. In occupied spaces or process work, in combination with temperature, it assumes important proportions. Latent heat results from additions of moisture of the space. Typical sources as applied to air conditioning are:

External.

Ventilation air and/or outside air infiltration.

Internal.

People—number, degree of activity.

Appliances—laboratory, operating rooms.

Process work.

Survey Data Needed

The first step in the development of the cooling load estimate for a specific job requires that a variety of information be obtained. Here we have in mind the following, which may be classed as Survey Data for summer air conditioning:

1. Building Structure.

Plans and elevations.

Location and orientation.

Details of construction.

Shading from adjacent structures.

2. Internal loads—quantity.

Lights, motors, appliances.

Process work.

Ventilation or infiltration.

Occupancy hours.

3. Internal loads—timing.

Peak occupancy.

Process schedule.

Continuous or intermittent operation.

Many manufacturers have developed cooling load estimate forms to be used in accumulating data and in making calculations in an orderly fashion. Fig. 1 shows one of these forms, which has been adopted by the Heating, Piping, and Air Conditioning Contractors Association as its "standard."

Having accumulated all the pertinent data outlined under Survey Data, the designer is confronted by such items as inside and outside design conditions, coefficients of heat transfer, and temperature differences. These items will be discussed in the order in which they appear on the cooling load estimate (Fig. 1).

Outdoor Design Conditions

Economics dictate that the capacity of an air conditioning system for normal use should not be

based on maximum recorded values of dry-bulb and wet-bulb temperatures for the area.

The ASHVE Guide contains rather complete outdoor design data for various locations in the United States. The Technical Advisory Committee on Weather Design Conditions suggested dry-bulb design temperatures for a given location which has been equaled or exceeded 2½% of the total hours in June, July, August, and September. Two-and-one-half per cent of the above period equals 72 hours. All this data is based on airport readings and is not normally applicable to cities.

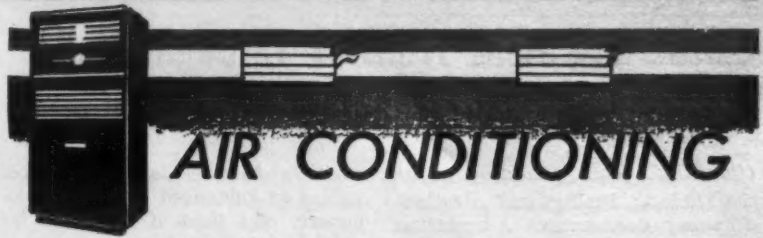
For installations in cities, the ASHVE Guide committee surveyed the chapter secretaries to determine design conditions in common

use in their area. These design wet and dry-bulb temperatures occur simultaneously and do not represent recorded maximums.

These recommended conditions are suitable for applications where room dry-bulb temperatures and relative humidities may be exceeded when outside conditions exceed recommended design values. These values are used for all normal applications by those engaged in the design of air conditioning systems.

In some industrial type applications close and exact control is required, and owning and operating costs are not of primary consideration. When this occurs room dry-bulb temperatures and relative humidity should not exceed design limits, and maximum recorded values of outdoor dry bulb and outdoor dewpoint are used as a basis of design.

It is my understanding that AFR91-8 regulation, as recently amended, specifies that Air Force



AIR CONDITIONING

Weather Service data shall be used in establishing outdoor design conditions for all Air Force installations.

The AFR91-8 regulation also covers the matter of inside design conditions briefly and to the point. It states the following:

"A space condition of 80° F. dry-bulb temperature and 45% to 50% relative humidity is recommended for comfort, although standard design conditions may deviate in certain areas. The inside design conditions selected will be those conditions which have proved most successful in previous air conditioning installations. Design condi-

tions for other than comfort are usually determined by the process or work being performed, and will be maintained within the limits specified by the using service."

Since the above is straightforward, additional comments on this subject do not appear necessary.

Gain from Sunlight

Rather complete and reliable data has been accumulated over the years on sunlight gain through glass. Table 1, which is abbreviated, illustrates solar transmission through glass data as supplied by

(Continued on next page)

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Calculating Heat Transfer Through Walls, Ceilings Complex; Tabulated Data Helps

(Continued from preceding page) the Heating, Piping, and Air Conditioning Contractors Association standard.

You will note that the data is applicable to 30° N. latitude. Similar tables are available ranging from 0° to 50° N. and S. latitude by 10° increments. From tables

such as this, solar transmission values as influenced by season, exposure, and time of day may be quickly determined.

These tables are supplemented by a series of correction factors which apply to altitude, haze, various kinds of glass, and shading devices. For a complete treatment

Table 1—Solar Transmission Through Glass

30° North Latitude		B.t.u. Per Hr. Per Sq. Ft. Sash Area					
Sun Time		6 a.m.	8	10	Noon	2	4 p.m.
Time of Year	Building Facing						
July 23 &	North	22	14	14	14	14	22
	East	100	155	99	14	14	5
	South	4	12	20	30	20	12
May 21	West	4	12	14	14	99	164
	Flat Skylight	15	123	214	246	214	123
	North	6	11	13	14	13	11
Aug. 24 &	East	66	165	102	14	13	11
	South	2	13	47	63	47	13
	West	2	11	13	14	102	165
Apr. 20	Flat Skylight	6	107	200	235	200	107

Table 2—Total Temperature Differentials for Sunlit and Shaded Walls

Sun Time		8 a.m.	10 a.m.	12 N.	2 p.m.	4 p.m.	6 p.m.	8 p.m.	10 p.m.	12 M.
North Latitude	Wall Facing									
Frame										
East	30	36	32	12	14	14	10	6	2	
South	-4	4	22	30	26	14	10	6	2	
West	-4	0	6	20	40	48	22	8	2	
North (Shade)	-4	-2	4	10	14	12	8	4	0	
8-In. Hollow Tile or 8-In. Cinder Block										
East	4	12	24	26	20	12	14	14	10	
South	0	0	2	12	24	26	20	12	8	
West	4	4	4	6	10	18	30	32	18	
North (Shade)	-2	-2	-2	0	6	10	10	10	6	
8-In. Brick or 12-In. Hollow Tile or 12-In. Cinder Block										
East	8	8	14	18	18	14	14	14	12	
South	4	4	4	4	10	16	16	12	10	
West	8	6	6	8	10	14	20	24	24	
North (Shade)	0	0	0	0	2	6	8	8	6	

Table 3—Total Temperature Differentials for Sunlit Roofs

Sun Time		8 a.m.	10	12	2	4	6	8	10	12
Description of Roof Construction										
Light Construction—Exposed to Sun										
1" Wood										
1" Wood + 1" or 2" Insulation	12	38	54	62	50	26	10	4	0	
Medium Construction—Exposed to Sun										
2" Concrete										
2" Concrete + 1" or 2" Insulation	6	30	48	58	50	32	14	6	2	
2" Wood										
1" or 2" Wood + 4" Rock Wool	0	20	40	52	54	42	20	10	6	
2" Concrete + 4" Rock Wool										
Heavy Construction—Exposed to Sun										
6" Concrete	4	6	24	38	46	44	32	18	12	
6" Concrete + 2" Insulation	6	6	20	34	42	44	34	20	14	
Roofs Covered with Water—Exposed to Sun										
Light Construction, 1" Water	0	4	16	22	18	14	10	2	0	
Heavy Construction, 1" Water	-2	-2	-4	10	14	16	14	10	6	
Roofs with Roof Sprays—Exposed to Sun										
Light Construction	0	4	12	18	16	14	10	2	0	
Heavy Construction	-2	-2	2	8	12	14	12	10	6	

on solar transmission through glass, I would recommend the ASHVE Guide.

Calculation of heat transfer through walls exposed alternately to sunlight and shade is complex if the effects of solar and sky radiation, absorptivity, temperature, air movement, and night radiation are not combined into a single effect.

The ASHVE Guide suggests the concept of sol-air temperature. The sol-air temperature is the temperature of outdoor air, which, in contact with the weather side of a surface which is shaded, would give the same rate of heat entry into that surface as would exist with the actual combination of incident solar and sky radiation and convective heat transfer.

With data supplied in the Guide, it is possible to calculate sol-air temperatures for non-glass building areas. These values have been determined and tabulated for standard wall constructions. Table 2 illustrates tabular values of sol-air temperatures for frame, 8-in. tile and cinder block, 8-in. brick or 12-in. tile or cinder block construction.

It should be noted that these values represent total temperature differentials, including transmission as well as solar temperature differences.

The character of solar transmission through walls is visualized more readily by a graph. Fig. 2 shows curves of total temperature

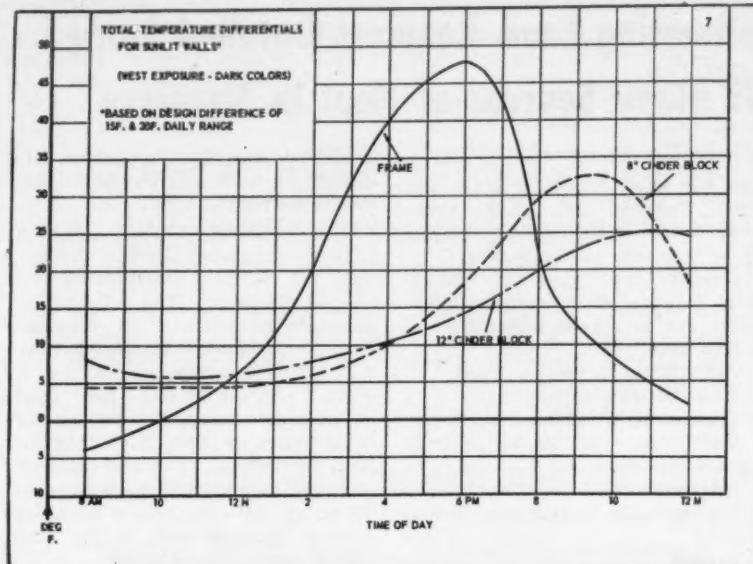


FIG. 2 shows hourly variations in temperature differentials for three types of wall construction: frame, 8-in. and 12-in. cinder block.

as determined from the previous table.

Here you may observe that the time of peak temperature difference and its magnitude are largely a function of wall mass. The light weight frame wall, with a west exposure, responds rapidly to sun exposure and peaks at 6 p.m. sun time with a heat transfer rate equivalent to 48°.

The heavier 8-in. cinder block or hollow tile construction lags behind sun exposure by several hours, peaking at about 9:30 p.m.

with a temperature difference of 32° F.

The heavy masonry wall consisting of 8-in. brick, 12-in. hollow tile, or 12-in. cinder block is less susceptible to sunlight gain than the other walls. It has considerable lag due largely to its mass. You will note that it peaks at 11 p.m. with a temperature difference of 20° F.

The amount of lag in a wall may have considerable bearing on the time and severity of building peak (Continued on next page)

exceptionally low moisture content

Here's the story about "genetron" REFRIGERANTS

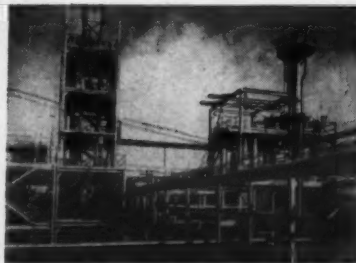
The most important things to be sure of in the refrigerants you use are these: that their moisture content is *always* extremely low . . . that their overall purity *always* meets strict refrigeration standards . . . and that this high quality is *always* maintained, cylinder after cylinder—ton after ton.

You can rely on "Genetron" refrigerants to measure up on every count—every time . . . and here's why!

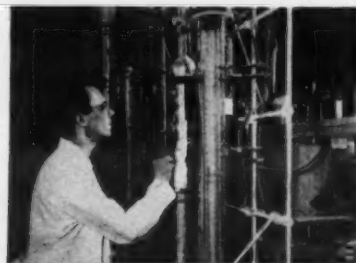
First, because General Chemical has over five decades' experience making

chemicals of unusually high purity for science and industry . . . actually supplies over 1,000 "precision products" that are certified to meet stringent specifications of America's scientific laboratories.

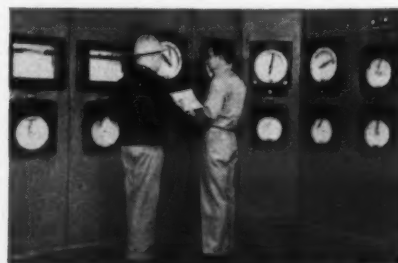
Second, because General Chemical is a pioneer and leading producer of fluorine compounds, the basic chemicals from which "Genetron" refrigerants are made. That means we *know* the materials behind organic fluorine refrigerants, how to handle them and



Production capacity of General's large new "Genetron" plant is now being tripled—enabling the company to supply industry's future needs most effectively.

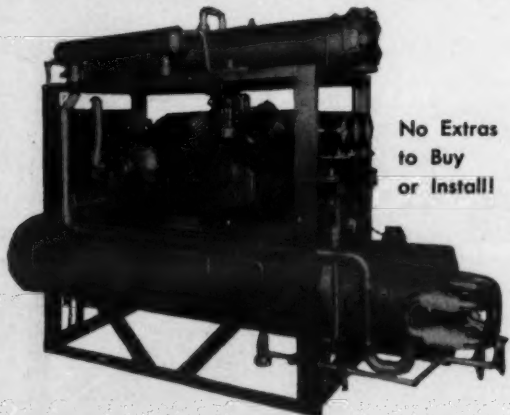


"Genetron" refrigerants are products of General Chemical's extensive fluorine research program which has developed over 90 products for science and industry.



The special process used to make "Genetron" refrigerants employs advanced techniques and control methods that assure the exceptionally low moisture content of "Genetron" refrigerants.

SCHNACKE Thermatrol WATER CHILLERS



No Extras to Buy or Install!

—completely packaged line . . . 10 through 60 tons!

Eliminate Costly Field Assembly!

All components in one low-cost single unit—motor, starter, full Freon charge, Thermatrol capacity regulator—everything! Designed for standard conditions: 40° suction, 55° water on, 45° water off. Simple hookup and balancing, 10-20-30-40-50-60-ton capacities standard. Ideal for multi-zone construction and year around systems. One order does the job! Write for engineering data.

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SCHNACKE, INC.

Evansville Indiana

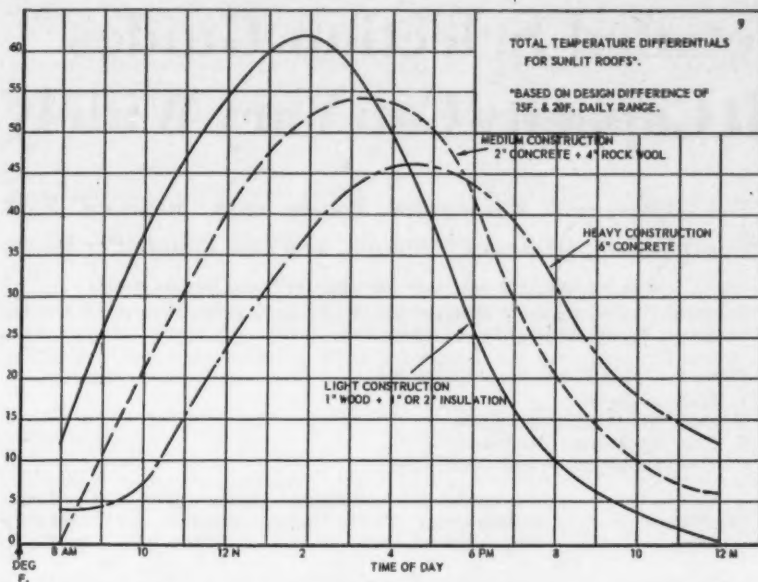


FIG. 3 shows hourly variations in temperature differentials for three types of roof construction: light, medium, and heavy.

Use of Transmission Coefficients--

(Continued from preceding page) load. For example, a west wall of masonry construction would not peak for several hours after an office building closes at 5 or 5:30, but in a night club it would coincide with peak occupancy and would have an influence on the peak load.

The cooling of the wall at night results largely from sky radiation

and the daily temperature range. It is estimated that a clear night sky has an effective radiant temperature of -70°F .

Shaded walls seldom reach temperature differences equaling inside to outside design differences. Since they are not exposed to direct sun and radiate to the sky at night, they are cool and actually absorb internal load.

Roofs exposed to the sun behave in the same manner as sunlit walls. Table 3 shows calculated values of total temperature differentials for various standard roof constructions versus time of day.

The characteristics of three classes of roofs are shown graphically in Fig. 3. Again it may be noted that the light construction of 1-in. wood peaks earliest with the greatest difference. The light construction roof peaks at 2 p.m. with 62°F effective temperature difference.

The roof of medium mass, 2-in. concrete with 4-in. rock wool, peaks two hours later, or 4 p.m., with a 54°F difference, while the heavy roof slab of 6-in. concrete does not peak until 6 p.m. with a value of 44°F difference.

In addition to the sun effect on walls and roofs, the cooling load estimate provides for calculating transmission through glass, partitions, ceilings, and floors. Here information on construction details, areas, and temperature differences between conditioned and adjacent non-conditioned spaces is required.

To convert temperature differences, areas, and type of construction into B.t.u. requires the use of transmission coefficients. The ASHVE Guide is the recognized authority in this area. The guide lists coefficients for a great variety of standard constructions; conductances and conductivities are also provided for all common building materials so that coefficients

Coefficients are expressed in Btu per hour per square foot per degree Fahrenheit difference in temperature between the air on the two sides, and are based on a wind velocity of 15 mph.

TYPE OF MASONRY	Thickness of Masonry Inches	INTERIOR FINISH (Plus Insulation Where Indicated)									
		Plaster (1/2 in.) on Walls	Plaster (1/2 in.) on Walls and Ceilings	Gypsum Board (5/8 in.) Decorated—Faced	Gypsum Board (5/8 in.) Plastered—Faced	Insulating Board (1/2 in.) Plain or Decorated—Faced	Insulating Board Lath (1/2 in.) Plastered—Faced	Insulating Board Lath (1 in.) Plastered—Faced	Gypsum Lath Plastered—Faced	Gypsum Lath Plastered—Faced	Wall Number
HOLLOW CONCRETE BLOCKS	8	Gravel Aggregate									
		0.56	0.52	0.34	0.34	0.24	0.19	0.17	0.15	82	
	12	0.50	0.46	0.32	0.31	0.22	0.22	0.16	0.14	83	
		Cinder Aggregate									
	8	0.41	0.39	0.28	0.28	0.27	0.21	0.20	0.15	84	
		0.38	0.36	0.26	0.26	0.25	0.20	0.19	0.15	85	
	12	Light Weight Aggregate									
		0.36	0.34	0.26	0.25	0.24	0.19	0.19	0.15	86	
		0.34	0.33	0.25	0.24	0.24	0.19	0.18	0.14	87	

FIG. 4 shows coefficients of transmission of masonry walls.

for non-standard constructions may be calculated.

A typical, but abbreviated, table of coefficients from the ASHVE Guide is shown in Fig. 4. This table is for masonry walls; however, for clarity we show only hollow concrete blocks.

You will note that three types of concrete aggregate are taken into account; also, the effect of several types of interior finish and insulation are shown.

Values are expressed in B.t.u. per hour per square foot per degree F. difference in temperature, and are based on a 15 m.p.h. wind velocity.

(To Be Continued)

ing a seasonal business, Hertzler asserted. It's year-round and no longer confined to warm areas.

At the Chicago meeting, which winds up a nationwide series during which the 1954 line was introduced to distributors, three central region distributor salesmen were admitted to York's "Hall of Fame" for outstanding sales accomplishments. They are Robert Garmire of Tony's Refrigeration Co., Kalamazoo, Mich.; Carden Henn, Hosler & Pearson, Inc., Fort Wayne, Ind.; and W. A. White, Murphy & Miller, Inc., Chicago.

Hosler & Pearson was awarded the medal of merit for excellence in over-all operation and sales accomplishment during 1953.

York To Spend Million On New Research Center

CHICAGO — York Corp. will spend about \$1,000,000 this year for a new and advanced research center, J. R. Hertzler, vice president and general sales manager, announced at a recent distributor's meeting here.

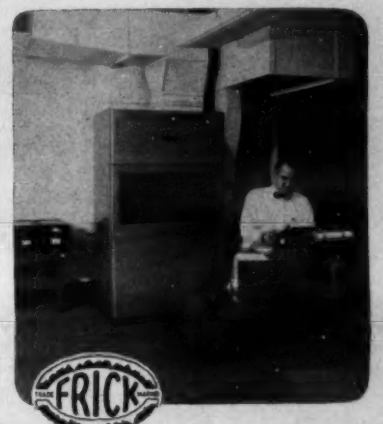
Much of the center's activity will be concentrated on residential and room air conditioning, he said. He expressed confidence that research will spur even bigger gains in air conditioning, new products, and continuing improvements.

He pointed out that air conditioning is making possible better construction at reduced costs. This is not restricted to certain regions, he said, for even in the Pacific northwest, an area long famed for its near-perfect climate, air conditioning for many types of buildings is being installed at a significantly increasing rate.

Because of "encouraging balloons in the business wind," Hertzler declared, York has stepped up production of room air conditioners. Employment at York is up 45% over last year, he said.

He noted that the company this year has 18 models in its room air conditioner line with prices beginning at \$199.95, or about 13% lower than last year. Increased production, manufacturing improvements, rising demand, and wider markets have made lower prices possible, he said.

Air conditioning has ceased be-



FRICK AIR CONDITIONING
WILL HELP ANY BUSINESS
(YOURS INCLUDED) ADD-UP
MORE PROFITS—

By drawing more trade, getting customers to stay longer, and keeping your staff more alert, more loyal.

Whether you are a distributor or a user, Frick air conditioning will meet your requirements completely. We build packaged units in three sizes, and central systems of many types. Frick engineers are unbiased in recommending the exact equipment you need.

Get in touch with the nearest Frick man today. Branch Offices in principal cities; territories for dealers available. Write now for literature and details to:



Two 6-cyl. Frick "ECLIPSE" Compressors and Auxiliary Equipment Provide 120 Tons of Refrigeration for a Central Type Air Conditioning System at the New Student Union Building at Kansas State Teachers College, Pittsburg, Kansas.



in a nutshell

build into them all the qualities required for use in today's refrigeration and air conditioning equipment. It means we have the mines, raw materials, the equipment and experience to serve the industry's needs effectively now—and in the future.

Third, because "Genetron" refrigerants are made by a special new modern process that guarantees exceptionally low moisture content and outstanding purity in every pound . . . and every ton of "Genetron."

That's the story of "Genetron" refrigerants "in a nutshell!"

... That's why you can be confident of getting the finest made, when you order "Genetron" refrigerants!

Always Ask for "Genetron" Refrigerants

For dichlorodifluoromethane—insist on "Genetron" 12 . . . for trichloromonofluoromethane, always ask for "Genetron" 11.

genetron 11

TRICHLOROMONOFUOROMETHANE

genetron 12

DICHLORODIFLUOROMETHANE

"Genetron" 12 and "Genetron" 11 are identical and interchangeable in all respects with dichlorodifluoromethane and trichloromonofluoromethane produced by any manufacturer meeting the same high refrigerant standards.



For Further Information...

Write or phone the nearest General Chemical office listed below. Ask for FREE TECHNICAL SERVICE BULLETIN 11.12A on "Genetron" Refrigerants.

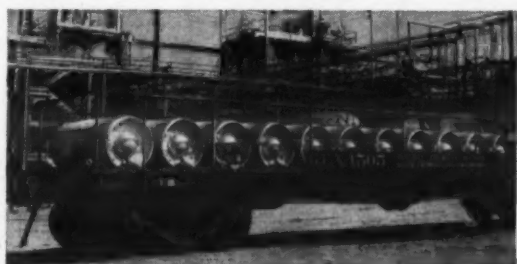
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Purity by the Carload



AIR CONDITIONERS

Appointed Distributor of Perfection Room Coolers

BROOKLYN—Arrow Utilities, designed air conditioning specialists, has recently been appointed distributor for Perfection room air conditioners.

Perfection Stove Co., Cleveland, manufacturer of the Perfection line, announced that the distributorship will cover the Brooklyn-Queens area and all of Nassau and Suffolk counties in Long Island.

Harold Reiter, president of Arrow Utilities, said there will be a number of limited dealerships available in this territory.

Coolerator Names L. T. & T. South Florida Distributor

DULUTH, Minn. — L.T.&T., Inc. has been appointed distributor of Coolerator appliances for the southern Florida territory, it was announced recently by G. L. Hartman, Coolerator director of sales.

L.T.&T., Inc. is located at 708 N. E. Flagler Dr., Fort Lauderdale, Fla. Syd Lamper is president of the firm.

National Motel Show Set for Chicago Nov. 1-3

CHICAGO—The National Motel Show has been scheduled for the Morrison hotel in Chicago, Nov. 1, 2, and 3, William Spigler, show director, announced.

Named as consultants were Strauss, Spigler, Kline Corp., Finance building, Philadelphia, who also manage the National Frozen Food Exposition and other industrial shows.

The National Motel Show will feature exhibitors of items used in the construction and maintenance of motels, recreational and gardening facilities, restaurant and laundry equipment, home and house furnishings, and chemicals used in cleaning and maintenance.

Form Baton Rouge York Co.

BATON ROUGE, La. — Baton Rouge York Co., Inc., air conditioning firm at 2700 North St., has been granted charter of incorporation listing capital stock at \$50,000 and 1,000 shares no par value.

Simple Yet Detailed Selection Guides Show How Unit Capacity Can Vary Widely

Airtemp Expects To Speed Training Of New Salesmen

DAYTON, Ohio — "After one season's selling experience, the average salesman knows how to select and sell room air conditioners. The problem is to be able to train the new salesman in much less time than one selling season."

This summary is a frequent consensus of sales managers working at the point of sale or final customer level in the room air conditioner industry, according to Ralph Gonzalez of Airtemp Division, Chrysler Corp.

"It is very likely that the new salesman may have to learn a great deal about the sales end of room air conditioners in addition to picking up a working knowledge of the selection and application of room air conditioners," he explains.

HELPS DETERMINE SPECIAL TRAINING NEEDS

"One thing is certain, and that is, if we can solve the quick training with reference to the selection and application of these units, we can then determine how much and

For Office and Residential Rooms with Standard Wall Construction, Ordinary Windows, and Two People Per Room

(For 95° d.b., 75° w.b. and 100° d.b., 70° w.b. Design Areas)

Standard Cooling Capacity of Room Air Conditioners Is Stated in the Following Tables in Square Feet of Room Floor Area.

Table for "Cool Floor" Rooms, Use For:

1. Slab on Ground
2. Over Air Conditioned Room
3. Over Residential Basement
4. Over Minimum-Vented Crawl Space

Conditioner Size	Un-Insulated Ceiling Under Attic Space			Insulated Ceiling Under Attic Space			Ceiling Under Finished Floor			Ceiling Under Air Conditioned Room		
	Hp.	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	1/2	3/4
3 Sun Walls	58	130	188	66	140	210	76	179	253	83	210	296
2 Sun Walls	67	146	196	76	169	247	88	210	293	100	250	353
1 Sun Wall	96	196	257	112	239	317	142	312	409	169	375	509
No Sun Wall	137	266	339	174	330	425	227	440	570	288	605	794

Use For Floor Over Finished Rooms or Over Well-Vented Crawl Space

Conditioner Size	Un-Insulated Ceiling Under Attic Space			Insulated Ceiling Under Attic Space			Ceiling Under Finished Floor			Ceiling Under Air Conditioned Room		
	Hp.	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	1/2	3/4
3 Sun Walls	55	119	159	61	137	185	68	159	218	76	179	253
2 Sun Walls	66	132	177	71	154	202	80	183	249	88	210	293
1 Sun Wall	87	174	228	100	218	275	121	256	346	142	312	409
No Sun Wall	123	231	296	149	286	368	191	360	457	227	440	570

Approximate Power Cost Per Hour of Full Cooling Operation of Chrysler Airtemp Room Air Conditioners

Room Air Conditioner	Average Electric Cost Per Kilowatt Hour									
	1c	1 1/2c	2c	2 1/2c	3c	3 1/2c	4c	4 1/2c	5c	5 1/2c
1/2 Hp.	1c	1 1/2c	2c	2 1/2c	3c	3 1/2c	4c	4 1/2c	5c	5 1/2c
3/4 Hp.	1 1/2c	2c	2 1/2c	3c	3 1/2c	4c	4 1/2c	5c	5 1/2c	6c
1 Hp.	2c	2 1/2c	3c	3 1/2c	4c	4 1/2c	5c	5 1/2c	6c	6 1/2c

what kind of special sales training is required to match up with the quick selection and application training."

With that purpose, Airtemp has developed and made available to its dealers a series of "Equipment Selection Guides" intended to show how much space can be adequately cooled by window units under various conditions.

FOUR SETS OF GUIDES

There are four sets of guides, which consist of small, pocket-size folders, each guide being designed for use in different design areas.

One guide is to be used in 90° dry bulb, 70° wet bulb and 95° d. b., and 70° w. b. design areas. Second is for 95° d. b., 75° w. b.; and 100° d. b., 70° w. b. design areas. Third is for 95° d. b., 78° w. b.; 100° d. b., 75° w. b.; and 105° d. b., 70° w. b. design areas. Fourth guide is for 95° d. b., 80° w. b.; 100° d. b., 78° w. b.; and 105° d. b., 75° w. b. design areas.

The new salesman, or even the veteran, will be using only the

guide applicable in his territory.

Window units covered in the guides are 1/2, 3/4, and 1 hp. "for office and residential rooms with standard wall construction, ordinary windows, and two people per room."

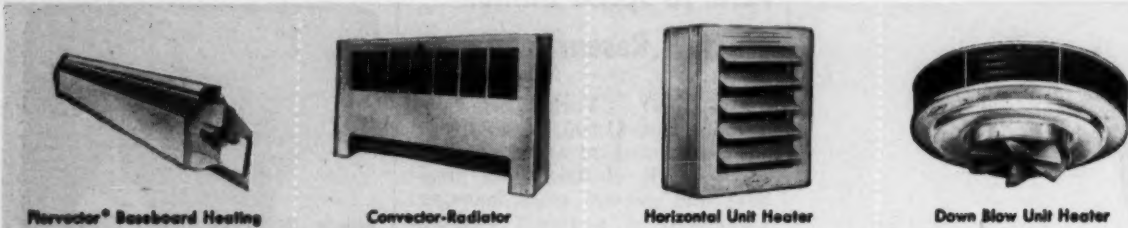
Three tables are provided in each guide. One shows the "approximate power cost per hour of full cooling operation of Chrysler Airtemp room air conditioners." Other two tables show "standard cooling capacity" of the units in terms of square feet of room floor area.

FOR ROOMS WITH 'COOL' FLOOR

One of these tables is to be used for rooms with a "cool floor," which is defined as "1. Slab on ground; 2. Over air conditioned room; 3. Over residential basement; 4. Over minimum-vented crawl space."

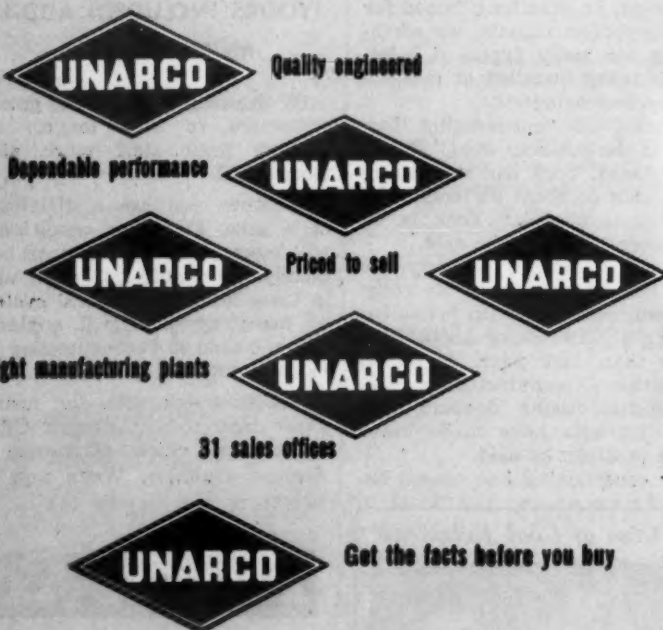
Wall exposure and ceiling types serve as the two coordinates of each table. For each of the three

(Concluded on next page)



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World's finest heating and cooling products in a complete range of types and sizes



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Get the facts before you buy

self-contained highway
2, 3, 5, 7, 10 and 15 ton cooling
capacities.
Heating capacities up to 450,000
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All UNARCO Products are available
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Custom Built
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to Meet Exact
Specifications



Thousands
Have Been Field
Tested For Years
Assuring Depend-
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Brookside Propellers
available in a complete
range of sizes and ar-
rangements, fill all re-
quirements of air condi-
tioning and ventilation.

(We Guarantee Delivery Date)

M-PEL-AIR

Brookside Products Company, Inc.
McCordsville, Indiana

Selection Guides -- Dealer Paints Room Units To Match Interior, Covers Exterior with Grille

(Concluded from preceding page) sizes of window units, ratings are given for these four types of ceilings:

1. Un-insulated ceiling under attic space; 2. Insulated ceiling under attic space; 3. Ceiling under finished floor; 4. Ceiling under air conditioned room.

Capacity also varies according to wall exposure. The table gives different capacities for "three sun walls, two sun walls, one sun wall, and no sun wall."

FOR ROOMS WITH 'NORMAL' FLOOR

Second table, which uses the same wall and ceiling coordinates, is for "normal floor" rooms and is intended for applications for "floors over finished rooms or over well ventilated crawl space."

Instruction data in the guide further points out:

"Where the space does not exceed the corresponding floor area by more than 30%, good results may be expected in warm summer weather but only spot cooling and relief cooling will result in the maximum summer weather. Extended operation of room cooling equipment is particularly helpful for such installations."

"The full operation of the cooling equipment during the hours of non-occupancy of the room will be found to help materially in producing improved results in the maximum summer weather. This will be particularly true for bedrooms having east and south exposures."

NEED FOR SPOT COOLING

The guide continues:

"Where the space exceeds the corresponding floor area from the table by more than 30% but less than 50%, spot cooling only should be expected in hot weather and the occupants should definitely be within 10 ft. of the equipment to get the full benefit of the cooling relief."

"The use of room air conditioners in spaces that exceed the corresponding floor area by more than 50% can be expected to provide only a spot cooling effect in the immediate vicinity of the equipment."

"Values in this table are based on daytime occupancy with operation of equipment to provide the maximum of results from a given size conditioner. Sleeping rooms may call for comfort conditions only after 10 p.m. Where such rooms do not have a west sun wall, the values of the guide table may be increased 30%. Where these rooms do have a west sun wall, the values of the guide may be increased 15%."

GLANCE WILL SHOW VARIATION

Even a quick glance at the tables in one of the four Airtemp guides readily indicates how much variation there is in capacity of a window unit under different conditions, according to these figures.

In the guide intended for 95° d. b. and 75° w. b. design areas, for example, capacity of the 1½-hp. model ranges from a high of 288 sq. ft. to a low of 55 sq. ft. The top figure is for a room with a "cool floor" and a ceiling under an air conditioned room. The low figure is for a room with a "normal floor" and an un-insulated ceiling under attic space.

Kern York Formed

BAKERSFIELD, Calif. — James Edward Smith, Gordon W. Parker, and Verner C. Hansen, formerly with Wm. M. McKenney, have formed a partnership under the name of Kern York and are now established at 325 19th St. here.

They have been appointed sales and service dealers for York air conditioning and ice making products in Kern county. McKenney is the local York distributor.

HOUSTON, Texas—Catering to the customer's decorative needs is the approach which a new Houston air conditioning retailer is promoting.

Lou White Stores opened in two locations recently featuring the stores' aid in solving decorative problems on sales of room air conditioner units.

Window units have a certain degree of unsightliness, White states, and his business setup plans to eliminate it in two ways:

(1) As a part of each sale of room air conditioner the store custom paints it to harmonize with the room decor;

(2) the store has created a grille covering for the exterior extension of the unit to give it at-

tractiveness—a wrought iron window grille, for example, painted in a white filigree.

The stores also offer semiannual free inspection and filter change over a five year period.

Jacksonville Firm Named Servel Appliance Outlet

EVANSVILLE, Ind. — Appointment of Cain & Bultman, Inc., of Jacksonville, Fla., as distributor for all Servel appliances was announced recently by Neal E. Schuman, field sales manager of the appliance division of Servel, Inc.

The territory covered by the distributor includes southern and southeastern Georgia, and the northern part of peninsular Florida. It embraces the trading areas of Brunswick, Thomasville, Valdosta, and Waycross, Ga., and Daytona Beach, Gainesville, Jacksonville, Ocala, Orlando, and Tallahassee, Fla.

National Retail Industry Show To Exhibit Latest Fixtures and Equipment

NEW YORK CITY — The first National Retail Industry Show, to serve the equipment, modernization, and construction needs of the nation's nearly two million retail stores, will be held Jan. 7-11, 1955, at Madison Square Garden here.

The new show, sponsored by the Store Modernization Institute, will be combined with the 5th Store Modernization Show which in the past has been held in June.

John W. H. Evans, managing director, said the show will be an exposition "of all the latest fixturing and equipment necessary for efficient and economical operation of retailer organizations."

The new expanded National Retail Industry Show, with 30,000 sq. ft. of exhibits, will be divided into

eight distinct sections: building and modernization, merchandise handling and warehousing, office and accounting, maintenance and supplies, displays and self-service, store operations, automatic vending, and delivery trucks.

Name Straus-Bodenheimer Deepfreeze Distributor

NORTH CHICAGO — Appointment of Straus-Bodenheimer Co., Houston, as distributor in southeast Texas for Deepfreeze Appliance Div., Motor Products Corp., has been announced by L. R. Walker, the manufacturer's manager of field sales.

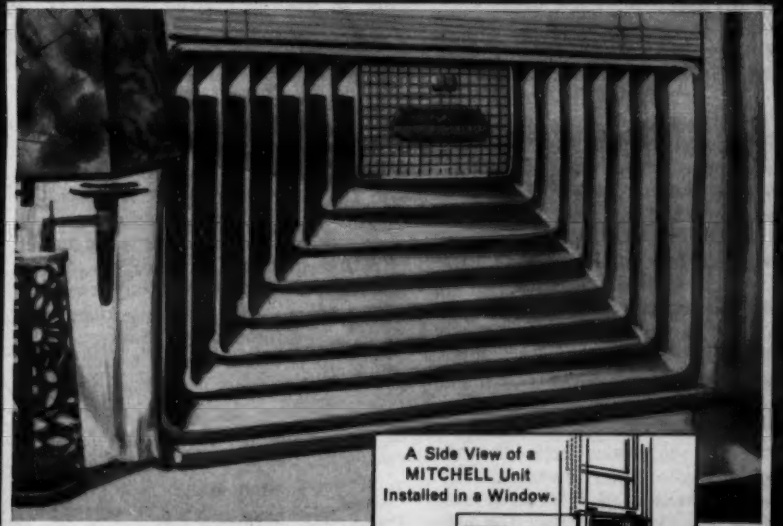
Straus-Bodenheimer will handle the full Deepfreeze line in 37 counties, including the cities of Houston, Bryan, Galveston, Beaumont, and Port Arthur.

D. H. Straus is president and J. B. Straus is vice president and sales manager.

it's SOUND BUSINESS to have the features customers demand in room air conditioners

MITCHELL TRUE FLUSH MOUNT

fits flat with the wall...



A Side View of a MITCHELL Unit Installed in a Window.

smart shoppers look for

a unit that permits drapes to be drawn not a "bulger"

a unit that blends with decorating not a "protruder"

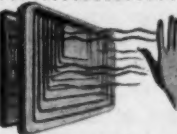
a unit that permits any furniture arrangement... not a "space stealer"

smart shoppers buy MITCHELL



MITCHELL Single Knob Weather-Dial Control

Now one concealed knob controls all seven levels of comfort.



MITCHELL Stepped-up Heating

An instant flow of heat and more of it... any time... at no extra cost.



MITCHELL Sound Muffler

Engineered super-quiet—in fact, so quiet you'll scarcely hear it.

PLUS! Weather-Robot Thermostat ★ Nite-Cool ★ Arid-Dry ★ Cool and Ventilate ★ Exhaust ★ Ventilate

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Please send complete details about the all new 1954 MITCHELL line. Include information on how I can become a MITCHELL FRANCHISED DEALER and get full benefits of your Dealer-Distributor Protection Plan.

Name.....

Store Name.....

Address.....

City..... State.....

Predicting Operating Costs

Method Developed by Carrier Corp. Engineer Claimed To Permit Close Advance Estimate of Power Costs

SWAMPSCOTT, Mass.—Seasonal operating costs for residential air conditioning can be predicted within 8% by a method developed by three Carrier Corp. engineers, it is claimed.

A paper describing the method will be presented at the semi-annual meeting of the American Society of Heating and Ventilating Engineers to be held here next June.

"The operating cost of residential cooling equipment is proportional to degree-days above 70° F.," is one of the conclusions reached by S. F. Gilman, chief, and L. A. Hall, intermediate engineer, Air Conditioning Systems and Equipment Section, Research Department, with E. P. Palmatier, director of research for Carrier.

"For the first time, a homeowner obtaining an air conditioning system for his residence, or one moving into a new completely air conditioned home can obtain a reliable estimate before he turns on his Weathermaker of what the average electrical cost will be," Palmatier said.

Heating, Cooling Costs Compared

"It will also demonstrate that the cost of cooling is far less important in total home operation throughout much of the country than the cost of heating.

"For example, heating a typical 1,200 sq. ft., \$15,000 to \$20,000 house may run from about \$40 in Atlanta to \$120 in Washington to \$200 in the New York area. But the cost of cooling the same house will only be about \$40 for the season in New York and Washington, and about \$60 in Atlanta.

"It is expected to be of great significance to architects, builders, and dealers as well. FHA, VA, and local lending institutions have also expressed considerable interest in summer cooling expense and this gives them an accurate picture for the first time. It should be of great importance in their approach that cooling costs in the south average a great deal less than heating costs in the north."

2 Charts Used In Estimate

"Tools" to make use of this method have been developed by the engineers in the form of two charts. Fig. 1 is the chart for predicting operating hours of a residential system. Fig. 2 is the chart for predicting power cost on the basis of hours of operation.

The "load factor" scaled on the left side of Fig. 1 is based on average capacity C of the equipment, which must be obtained from the manufacturer, and the 24-hour average cooling load H at design conditions.

Value of H, the cooling load, is calculated by the so-called "24-hour method" such as used by Carrier and others.

Bottom scale on the left side of

Fig. 1 is for degree-days above 70° F.

This data is not now available in tabulated form, but the authors of the paper state that "values can be obtained from available degree-day maps.

"Alternatively, fairly accurate values can be readily procured from Weather Bureau data by subtracting 70 from the average monthly temperature and multiplying by the number of days in the month. By doing this for each summer month over a period of several years, values fairly representative of normal summer weather will be obtained. The hotter the weather, the better will be the agreement with the result of computations based on the daily average temperatures."

Scale on the right side of Fig. 1 is based on values of t_m , which is the difference between the design dry-bulb temperature and half of the daily range of the dry-bulb temperature.

(If the design d.b. is 95° F. and the daily d.b. range is 21° F., then $t_m = 95 - 10.5$ or 84.5.)

Fig. 1 is used for predicting the total operating hours for the cooling season. The total hours so obtained are plotted on the lower left scale of Fig. 2 as the first step in determining power cost.

The factor of P (seasonal average power input in kw.) on the left-hand scale of Fig. 2 must be obtained from the manufacturer.

Right-hand scale of Fig. 2 is R, the power rate in cents per kwh. This is obtained from the local utility.

Knowing the total operating hours, power input, and power rate, one can read on the bottom right scale of Fig. 2 the power cost in dollars for the season.

"For an air condensing operation this also represents the total operating cost," the authors explain. "For a water condensing application the water cost, as determined from the operating hours, water rate, and manufacturer's data on equipment water usage, is added to the power cost to obtain the predicted total operating cost."

The authors outline an example of how to use the charts, given the following data:

Total degree-days for season 1,150
Design d.b. temperature 95° F.
Daily range of d. b. 21° F.
24-hour average cooling load 28,500 B.t.u./hr.
Seasonal average capacity of equipment 37,000 B.t.u./hr.
Seasonal average power input 4.5 kw.
Power rate per kwh. 2¢

Starting on the lower left scale of Fig. 1 with 1,150 degree-days, go up to 0.77 load factor (H/C, or 28,500/37,000). From this point go across to 84.5° F. for t_m on the right-hand scale. Dropping down from this point gives 1,450 as the number of operating hours predicted for the season.

With 1,450 hours, start at this

point on the bottom left scale of Fig. 2, rise to the 4.5 power input on the left scale, go across to the 2¢ power rate on the right-hand scale, and from there drop to \$130 on the bottom right scale, the predicted power cost for the season.

Research which developed this method of predicting operating costs was carried on during 1952 and 1953 in 11 homes located in Atlanta, Washington, D. C., Houston, Dallas, New Orleans, and Syracuse, N. Y.

Difference Between Actual And Predicted Costs Minor

There was some variation between predicted and actual operating costs, but the actual difference in dollars was considered insignificant in most instances.

Predicted cost of operating a 5-ton system in one Atlanta home, for example, was \$155.33, but the actual cost was measured at \$151.13.

In six of the 11 homes studied, predicted costs ran more than the actual costs of operation, the difference ranging from \$2.58 up to \$14.25. Latter was a 5-ton system in a New Orleans home where the season's power cost totaled \$166.90

Residential Air Conditioning

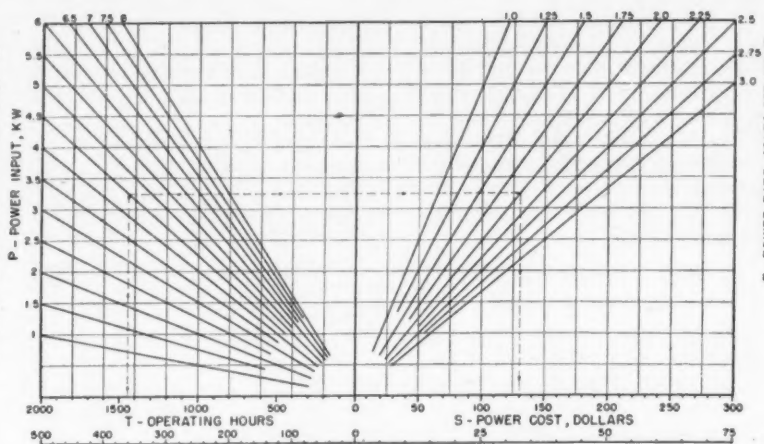


FIG. 2—Chart for predicting power cost in dollars for operating residential cooling system entire season.

compared to a predicted cost of \$181.15.

In the remaining five homes, actual costs ran slightly more than predicted, ranging from \$1.50 to \$40.40. Latter difference occurred in a Dallas ranch style home where costs had been predicted at \$159.34 but were actually \$199.76.

One of the reasons for the marked difference for this home, the authors of the paper explain, was that the calculated cooling load H was too low in this one instance.

"This residence had much of the supply-air ductwork in a crawl space and, as a consequence, the duct heat gain was considerable. The load estimating form is presently being refined to more accurately evaluate heat gains to ductwork in attics, basements, and crawl space, and thereby yield a more precise evaluation of H," they declare.

Carrier officials stated that the new cost estimating method is currently being worked out for every area in the country.

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Air Conditioning Controls

Penn builds BOTH heating and cooling controls ... and has been doing it for leading manufacturers of heating and refrigeration equipment for many years. That's the reason Penn is recognized as the ONE SOURCE for dependable, time-tested, year 'round controls for central residential air conditioning!

The Type AC10 heating and cooling thermostat (illustrated) is one example of Penn's leadership. Under the attractive, harmonizing covers, you'll discover many features. Features like "heat

anticipation" and "cold anticipation" to assure closer temperature and humidity regulation for year 'round comfort.

Get the right start in the new, profitable residential heating and cooling market. Be sure that the packaged air conditioning you sell and install is fully equipped with Penn Controls.

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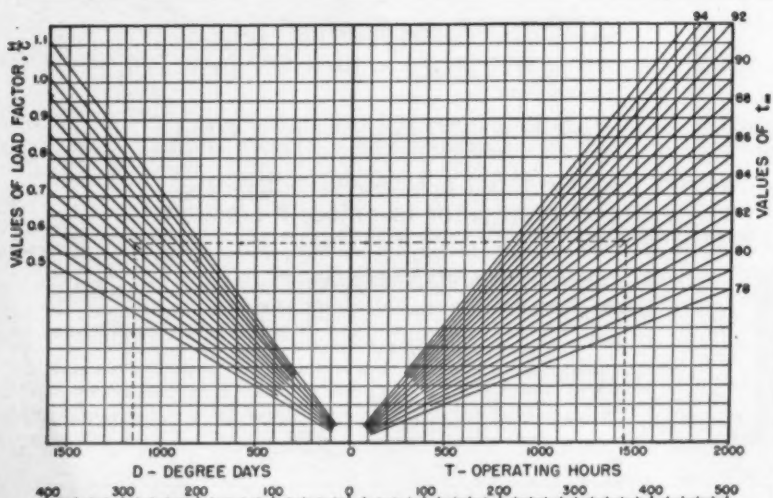


FIG. 1—Chart for predicting number of hours residential cooling system will operate during a season.

Heat Pump Systems In Bank Buildings Reduce Construction, Operating, Re-Decorating Costs

JACKSON, Mich.—Two of the nation's newest banks, one in Canton, Ohio, the other in a Jackson suburb, are equipped with heat pumps to provide year-round air conditioning, according to Acme Industries, Inc. here.

In both jobs Acme "Flow-Temp" heat pumps extract heat from 50° well water to maintain desired winter temperatures, the wells also serving in summer to absorb heat removed during the air conditioning operation.

Because installations of this type require far less area than conventional boilers that must have additional fuel storage space, both banks profited by having more usable space. In the Michigan Center branch of the National Bank of Jackson the extra space was used to provide a conference room that is constantly available to customers of the bank for business meetings.

The Home Savings and Loan Co. of Canton, Ohio found the use of heat pumps meant space was available in the basement for a conference room, complete electric kitchen, vaults for safety deposit boxes, and a beautifully furnished women's lounge.

Because of the complete absence

of combustible fuel, the buildings are cleaner, and cost less to maintain. Automatic heat pumps have further eliminated the cost of a resident engineer, Acme points out.

According to officials of the Hungerford Construction Co., construction costs of the Jackson bank, which is a new building of the drive-in type, were decreased by the elimination of the need for a chimney. The summer air conditioning equipment which was considered essential, is simply reversed to heat the building in winter.

Extensive data already accumulated by Acme Industries from several hundred heat pump installations in residences, schools, and various types of commercial buildings indicate both the economy and dependability of heat pumps. As there is no need to have a serviceman clean and adjust the heat pump system every year, maintenance costs should be negligible, Acme believes.

In addition to installation and maintenance cost savings accrued with heat pumps, actual operating costs where electricity is available at normal rates compares favorably with gas and oil heating.

As the heat pump uses electric

energy to extract heat from another source, well water, efficiency is high, as all the heat created by the operation of the system is used to warm the building. Combustion losses when fuel is burned and normal stack losses are eliminated.

The Michigan Center branch of the Jackson bank uses radiant heating coils embedded in the concrete floor slab to carry part of the winter heating load. When outdoor temperature drops below 25°, these floor coils are supplied with 90° to 100° water generated by a 5-hp. heat pump. By keeping this temperature relatively low, the floor never gets too warm.

While the building was designed to have the floor heating system cut in at 25°, experience gained during the winter proves that the floor heating system does not "cut in" until the outdoor temperature is close to zero. This is due to the efficiency of the convector system.

The major portion of the winter heating load and summer air conditioning service are provided by eight Acme room convectors powered by a 7½-hp. heat pump, which supplies 120° water in winter and 45° water in summer for air conditioning.



BUILDING MAINTENANCE and redecorating costs will be a minimum in the Home Savings and Loan Co. of Canton, Ohio. Cleanliness of the all-electric Flow-Temp heat pumps eliminates the dirt, grime, and odors often incurred with conventional fuels. Outlets for the heating and air conditioning system are in the ceiling.

As with all Acme installations of this type, the changeover from winter to summer operation and back again is handled by a special four-way valve developed by Acme for this purpose.

On the basis of competitive bids, heat pumps were selected over conventional heating and air conditioning for the three-story loan company building in Canton, Ohio, which was completely renovated by the Bank Building and Equipment Co. of America.

The new heating and air conditioning system was installed during the modernization of the building, with business as usual throughout the operation. The work was done piecemeal starting with the top floor, and as each zone was completed it was re-occupied by bank personnel. Simplicity of the system permitted completion of the installation by the Refrigeration Distributing Co. of Canton even before the front of the building was erected.

As the building already had its own well, which can supply up to 75 g.p.m., it was only necessary to install one 10-hp. and two 7½-hp. heat pumps to assure adequate supply of heated water in winter and chilled water for summer air conditioning. Waste water is returned to the ground.

An outstanding cost-saving feature of the Home Savings and Loan system is the use of "pre-conditioning" coils for both summer and winter operation. In summer these coils pre-cool the air by the use of cold water taken directly from the well, and in winter temper the air before it enters the main conditioning system. The result is a substantial saving in power costs during the two seasons of the year when demand is greatest.

An interesting characteristic of

the system is that because of the heavy inside lighting load, summer air conditioning is often required in the building even when outside temperatures drop below 60°.

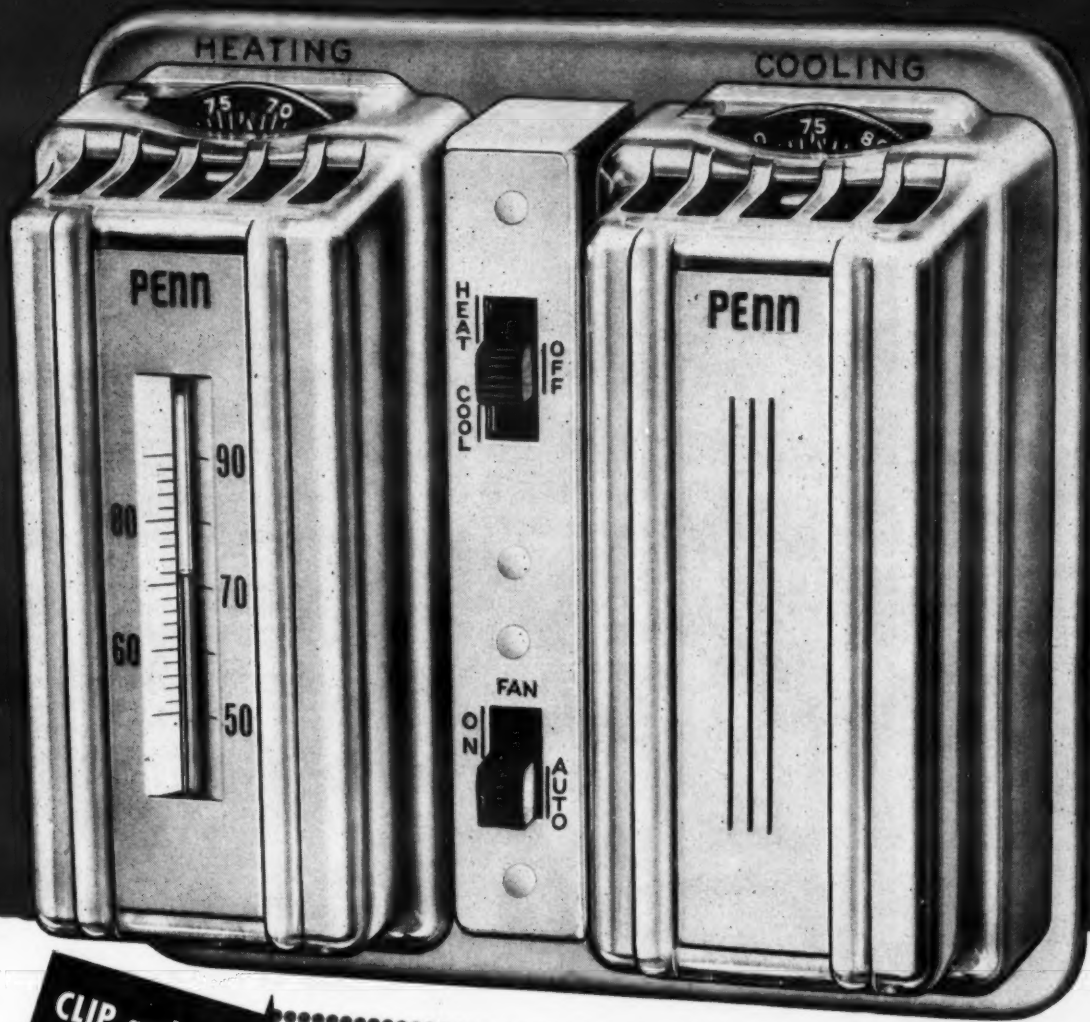
Carl W. Millsom, sales manager of Acme, contends that economical operation of heat pumps in northern climates is dependent on using pumps of the "water to water type." Table water, available from wells, streams, and even under the ice in lakes, is warm enough for this purpose.

With the air to air type of heat pump, when the outside temperature goes below freezing, auxiliary heating of some type is usually needed, he says. With the Acme method the heat pumps carry the entire winter heating load.

According to Max A. Weisbrod of Refrigeration Distributing Co., interest in heat pump installations is steadily on the rise in the Canton area, as the Ohio Power Co. has retained a heat pump specialist who will do all the engineering for heat pump systems. The utility is also in a position to furnish servicemen who are well qualified to handle this type of equipment.

Unquestionably, heat pumps have entered the banking business to stay, Acme believes. The many advantages of flameless heating, combined with summer air conditioning service, appeal to even the most conservative individuals. As many banking institutions have considerable experience in building operation and maintenance, they are quick to see the financial advantages of this type of system.

With more usable space available, lower cleaning and redecorating costs, lower maintenance costs, and less service expense, economy alone may dictate the use of the heat pump in banks and other types of commercial buildings.



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Here's the first and only air conditioning control manual. It's loaded with practical installation data. You'll need and use this helpful information. Reserve your free copy now. Mail coupon to Penn Controls, Inc., Goshen, Indiana.

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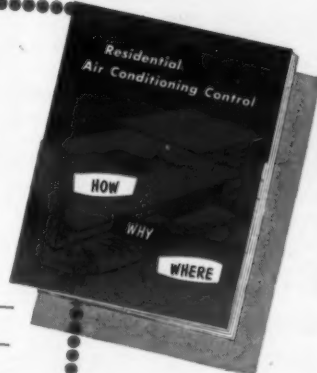
City _____

Individual's Name _____

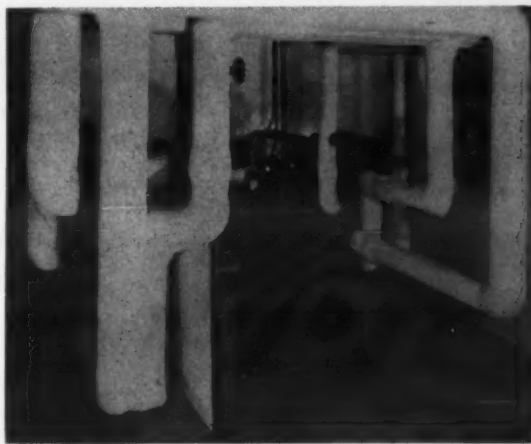
Zone _____

State _____

Type of Business _____



IN THE MICHIGAN CENTER Branch of the National Bank of Jackson, convectors of the type shown in the center furnish summer air conditioning and carry the major winter heating load. The convectors are powered all year around by a Flow-Temp heat pump.



COMPACTNESS of the heat pumps installed in the basement of the Home Savings and Loan Co. building permitted use of boiler room and fuel storage space for a conference room, kitchen, safety deposit vaults, and a women's lounge.

How Advertising Helps Contractor

Consultant Tells How Live Leads for Air Conditioning Sales Can Be Cheaply Developed by Proper Use of Direct Mail

DETROIT—Does direct mail advertising logically fit into the operations of an air conditioning contractor?

If so (and it's generally agreed that it does) how can it be used most effectively?

Live Leads Are Primary Purpose

"Primary purpose of direct mail advertising, as applied to the air conditioning business, is to develop live leads that can be ultimately turned into orders through sales initiative," explains Dalton P. Fox, direct mail consultant here who has been specializing in the air conditioning and refrigeration field for several years.

Campaigns developed by Fox and employed by a leading Detroit contractor have been nationally recognized in direct mail circles. In 1952, for example, his campaign was adjudged the "Best of Industry" for the entire air conditioning and heating field. Last year the national direct mail group differentiated between manufacturers and distributor-dealers so Fox' campaign carried off the "Best of Consumer" direct mail award for this field.

"We hear a lot about the value of making 'cold calls' these days. Much of it doesn't hold water," Fox believes. "Certainly any sales manager would prefer to keep his sales force busy negotiating orders rather than digging up prospects. And that is the very thing that good direct mail advertising accomplishes."

"Direct mail advertising is extremely effective in the air conditioning industry because of two major factors. First, because of its selectivity, it can be aimed at particular groups or markets. Second, as a result of high dollar volume on air conditioning equipment, it is low in cost."

Direct Mail Leads Are Better Quality

"It is the best way, by far, to create consumer interest for such products as commercial self-contained air conditioners, central systems, and industrial air conditioning," Fox also says.

"Direct mail leads are better in quality than those obtained from consumer space advertisements having a return coupon," Fox is convinced. "Children, students, and convalescents are notorious coupon

clippers and frequently impose on a salesman's time."

"This rarely happens with mail promotion. A secretary or doctor's assistant does occasionally send in a card that the boss doesn't know about, but this, however, is usually a sales assist."

"Direct mail can be used successfully to promote the sale of room air conditioners along with other media, including newspaper, radio, and television advertising. Direct mail also has considerable value in pioneering new markets and introducing new equipment."

Good List Is Starting Point

"Just as you must aim before you shoot, every successful direct mail promotion must start with a good list. It can be compiled in a number of ways. On self-contained commercial units, a satisfactory basic list can be started from the classified telephone directory and a Chamber of Commerce membership roster. List should include all types of business that are known to be prospects for air conditioning."

"Compiling a list of industrial air conditioning prospects is somewhat more difficult," Fox admits.

"This should be personalized. It should include the names of presidents, plant managers, and purchasing agents of every manufacturing plant in your area. If such a list is not available locally, one can be built up through telephone contacts."

Don't Skimp On Expense When Buying Names

"Don't try to skimp on expense when buying lists. They are the very backbone of your promotion. Whether your campaign shall succeed or fail depends on your list. You may have a wonderful campaign but it won't click unless it reaches the right people."

"Prospect lists for room air conditioners should also be personalized. They should include the names of successful business executives, professional people, and other high-income groups. Of course, doctors and dentists will be found in the phone book."

"Other names will be located through various sources. These include club rosters, industrial directories, social registers, trade associations, etc. It might be well for you to enlist the aid of a local letter shop that deals in lists. Make certain that they are reliable, however, and that you know what you are buying."

Cross-Index Telephone Book

"If you want to reach individual homeowners by streets and neighborhoods, a cross-index telephone directory is your best bet."

"Your most valuable list, however, is already in your file. It is the names of your present users. This can be used to build service business and promote new customer leads."

Regardless of the source of your list, be certain you have the names correctly spelled, Fox emphasizes.

"In any mailing, the letterhead is most important. It should be in good taste and attractive in design. It will pay you to use color liberally in all mailings. There should be a contrast between letterhead, envelope, and return card."

"Some of the larger envelope companies furnish a color wheel which is very helpful in selecting complimentary colors. All component parts of a mailing should be attractive in appearance with a look of quality. This doesn't necessarily mean that they should be expensive."

Letters Outpull Self-Mailers

"All large direct mail users are unanimous in the opinion that the best combination for a successful mailing consists of a letter with return card and envelope enclosure. Mailing folders are simpler to process than letters, but they fall down in results. In countless tests, letters invariably out-pull self-mailers by a considerable margin," Fox says.

"Letter copy should be interesting and friendly. Use simple words and short declarative sentences. Appeal to the customer's problems and interest. 'You' and 'your' should be the most popular words in every letter you write. Don't try to oversell your product with a long list of features. Let the envelope enclosure do the heavy selling. Bear down on such subjects as savings and profits. Don't neglect the angles of comfort, health, and need."

Word of Caution on 'Gadget' Letters

A word of caution regarding the use of "gadget" letters (any letter that has attached to it a gadget to attract attention) is also voiced by Fox.

"These must be used with considerable care because the recipient of the letter may be carried away with the gimmick idea and pass up the message completely. They often create a terrific interest in the gadget, but not in the product you're trying to sell."

"Many people have the idea that short letter copy is preferable to long copy. The opposite is true,

however, in practice. Long copy will out-pull short copy every time if it is interesting enough. Magazine publishers are a case in point. Many use multi-paged letters in soliciting new subscriptions. They are among the most successful users of direct mail and certainly should know the score."

"A postpaid business reply card should always be enclosed. Always include an envelope enclosure or other literature describing your product. Of course, the phone number should always be given in letter copy."

Series of 3 or More Pieces Is Good Practice

"It is good practice to send out a series of three or even more mailings in each major promotion. Letters can be processed in a number of ways. In most instances, however, multigraphing is preferred. A filled-in salutation won't produce any more results than a letter with a good headline."

"In the majority of mailings, metered third-class postage will produce as much as first-class. Of course, there are exceptions to every rule. If you are trying to get a message through to company presidents or key executives on large equipment, use nothing but first-class mail. Then letters should be electrically typewritten with hand-signed signatures."

"Now we come to the subject of actual returns. How high should they be? The answer varies with (Concluded on next page)

YOU'LL SELL MORE PROFITABLE JOBS

with the complete line of

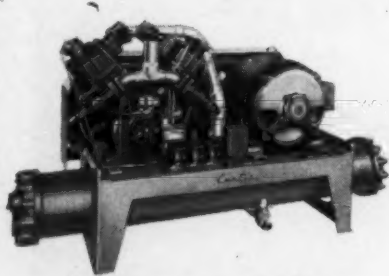
Curtis

AIR CONDITIONING AND REFRIGERATION EQUIPMENT

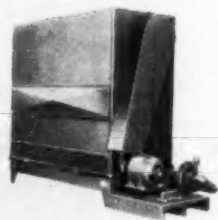
Every product in the Curtis line is built with quality material and workmanship.

Curtis equipment is known around the world for its dependability and efficiency.

With the complete Curtis line, you can handle any installation for Home, Office, Store, or Factory.



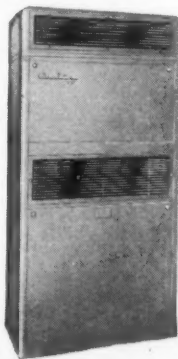
Condensing units—through 80 tons



Evaporative Condensers, Cooling Towers and Air Handling units to match



NEW 1954 Curtis Room Air Conditioner—an attractive, efficient unit with a BIG market potential



Packaged Units—2, 3, 5, 7½ and 10 tons
Choice of open or semi-hermetic compressors... and 15 ton packaged Central type units



Residential cooling and heating units

You may qualify for a direct factory franchise. Write us, using your company letterhead.



National advertising in Saturday Evening Post, Time, Newsweek and House and Home, plus many other publications helps sell Curtis to your customers and prospects. Attractive new sales literature is available to help you sell in your local area.

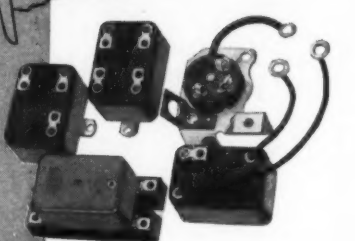
CURTIS REFRIGERATING MACHINE DIVISION
OF CURTIS MANUFACTURING CO.

1912 KIENLEN AVENUE
ST. LOUIS 20, MISSOURI

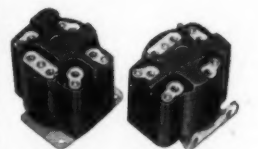
765



A COMPLETE LINE—
Designed to Your
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SERIES RELAYS
Balanced armature—Can be mounted in any position.



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Precision snap-action contacts. Convenient terminal board wiring. Totally enclosed.



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Patented bi-metal snap-action—Inherent protection. Large solder terminals. Manual and automatic.

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ESSEX WIRE CORPORATION
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Controls for Electronic, Refrigeration, Industrial, Appliance, Communication and Automotive Industries.

Direct Mail Advertising for Contractors--

(Concluded from preceding page) the type of equipment, timing, weather, and demand. A return of 1% on self-contained equipment in January would be considered satisfactory. In June, the same result would be looked on as a failure.

"In real warm weather, returns mount sharply with the heat. When the temperature is soaring, phone replies often exceed return cards by a ratio of as much as 10 to 1. It is an established fact that the hot prospect doesn't rely on the mails. He wants immediate action and reaches for the phone instead.

One Industrial Order Usually Pays Many Times For a Mailing

"A return of a fraction of 1% on an industrial air conditioning mailing can be considered very good. One industrial order will generally pay for a promotion many times over," Fox points out.

In judging the results of direct mail, he also suggests that the cumulative effect must not be overlooked.

"A percentage of 2% returns on any one mailing may not seem significant, but a 2% return on each of six mailings brings the over-all total to 12%, a very important figure.

"And while in many cases you may not get an immediate order as the result of an inquiry, you still have a potential prospect represented by that inquiry. It's 10 to one that most merchants and store owners will eventually come to the point where they will have to have air conditioning.

"Another thing—continued mailings have a strong institutional value. People get to know who you are and remember you when they're in the market for your products. And your salesman gets a much better reception when he makes a casual call.

Schedule Mailings To Arrive Mid-Week

"Mailings to business places should be scheduled to arrive during the middle of the week. Saturday is the best day, however, to reach homes. The first of the month and holiday periods are to be avoided.

"If you're pioneering new equipment, such as residential air conditioning, don't expect the same results as you would on room air conditioners or other products. Incidentally, if you're selling residential air conditioning, don't overlook architects and builders. Both groups are extremely interested in obtaining information on air conditioning. This advice, of course, doesn't apply in those parts of the country where residential air conditioning is already on the move."

Cost of Direct Mail

How much does direct mail cost? As with most things, the cost can vary widely, depending on quality and quantity, Fox points out, but he indicates that the total cost on a letter mailing will generally run from 5½¢ to 10¢ a letter.

"Of course, the individually prepared letter sent first-class mail to executives will cost considerably more, possibly in excess of 25¢ each. This isn't expensive, however, when you consider you're angling for an order that might possibly run into five figures."

Some idea of a campaign consisting of 1,000 letters on room coolers, say, is given in the following itemized breakdown by Fox:

Letterheads	\$10.00
Envelopes	12.50
Reply cards	8.00
Addressing (hand typing)....	12.50
Envelope enclosures (Usually purchased from manufacturer)	10.00
Inserting	4.00
Metering, sealing, tying	3.50
Postage (3rd class)	15.00
Total	\$75.50

This campaign would obviously cost 7½¢ per letter, which falls within the general range cited by Fox.

Follow Up Replies Promptly

He is also of the opinion that the average air conditioning contractor would find it better to engage the services of a direct mail firm rather than try to do this specialized work within his own organization.

"In any event, the contractor who uses direct mail must be prepared to follow up the replies promptly if any good is to come from this type of advertising. This doesn't necessarily mean that you must have a salesman call on the prospect the very next day, but you should acknowledge the reply from the prospect with a letter or phone call immediately," he suggests.

Airtemp Sales Leaders To Get Air Conditioned Cars

DAYTON—It will pay off in comfort this summer to be one of Chrysler Airtemp's top-selling regional sales managers according to J. F. Knoff, vice president in charge of sales.

The company announced that the seven sales managers, whose regions form the top half of Chrysler Airtemp's 1954 sales on April 22, will weather this summer in luxuriously-appointed air conditioned Dodge four-door sedans.

The winning managers will be selected on the basis of total sales in relation to established 1954 sales objectives, Knoff said.

Set for Spring Trade

ALBANY, N. Y.—A Worthington air conditioning installation was made in the new Bond's clothing store here by Westover-Wolfe Contracting Co. Inc.



Remington Conditioner Has Chlorophyll 'Air Fresh'ner'

AUBURN, N. Y.—After two summers of successful field tests, Remington Corp. has incorporated in its ½-hp. deluxe window air conditioner as standard equipment

an exclusive "Air Fresh'ner" device containing chlorophyll which sweetens room air and kills odors, the company reported.

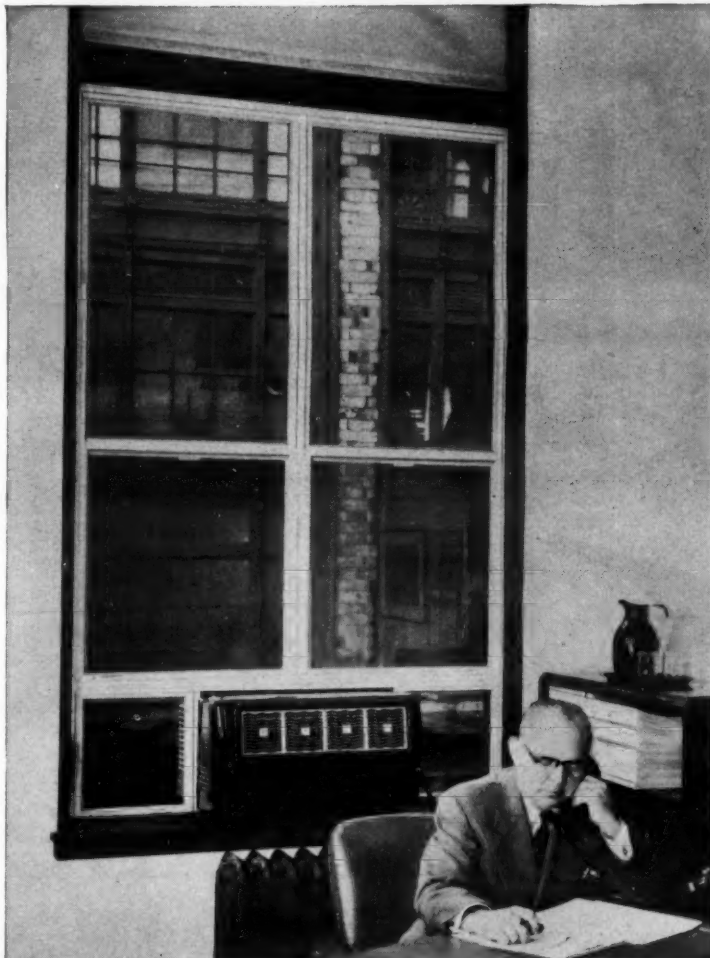
Jointly developed by Remington and Aikem, Inc. engineers, the new Air Fresh'ner fits into the side of the unit and may be turned on or off as desired.

"With normal usage, one container lasts all season," the company said. Replacements are easily available at about 79¢.

"The new air Fresh'ner is particularly recommended for use in dispelling tobacco smoke and cooking and other unpleasant odors."

Other new features of Remington's ½-hp. deluxe window unit were listed as a one-piece tube type cabinet which permits installation almost entirely outside or inside the window, air intake grilles at the front to prevent interference with drapes, quiet operation, a thermostat for automatic temperature control, and optional electric heating. Prices start at about \$299.95.

New RUSCO AIR-CONDITION WINDOW LICKS INSTALLATION PROBLEMS!



Rusco Window is Fully Pre-fabricated Unit that Completely Replaces the Old Window. All Glass Panels Removable from Inside for Safe, Easy Cleaning

THE RUSCO AIR-CONDITION WINDOW completely eliminates makeshift, unsightly installation—gives you a bright, handsome, streamlined job that *helps sell* more air conditioning! Eliminates sealing problems. There is no air or soot leakage because it is a precision-made, weathertight unit. Frames are tubular galvanized steel, finished with baked-on enamel.

THE RUSCO AIR-CONDITION WINDOW permits maximum glass area for full light and visibility; maintains normal window appearance. Available with insulating sash for double glass insulation which gives maximum air conditioning efficiency.



All glass panels, including flankers, are removable from inside for safe, easy cleaning. Eliminates window washing problems.



Extra glass panel replaces conditioning unit and flanker windows when unit is removed for servicing or storing. Held securely in place with spring action locks.



During periods when air conditioning is turned off or removed, natural ventilation is provided by raising the vertical-slide window.



Rusco Windows provide the most efficient double-window insulation for either new construction or existing buildings—an extremely important factor in reducing load and operating cost of air conditioning equipment. Clark's Restaurants, Cleveland, Ohio (Rusco installation shown above) found them the ideal solution to their serious problem.



Rusco all metal Adjustable Venetian Awnings provide a permanent, highly-efficient shade treatment for reducing heat infiltration. Leading authorities state that proper window shading treatment is of great importance in reducing costs and increasing efficiency of air conditioning.

RUSCO WINDOW TREATMENTS FOR AIR CONDITIONING

THE F. C. RUSSELL COMPANY
Cleveland 1, Ohio • In Canada: Toronto 13, Ontario

For Proper Window Insulation and Shading—so important to efficient air conditioning

Look to RUSCO

The F. C. Russell Company, Dept. 2-AC44
Cleveland 1, Ohio • In Canada: Toronto 13, Ontario

Gentlemen:

Please send me literature on Rusco Air-Condition Windows and Window Treatments for Air Conditioning.

Name

Company

Address

City

Zone

State



AIR CONDITIONING



THIS PACKAGED unit installed in the Woolworth store in the Magic City Shopping Center proved so satisfactory that the builder decided to use them throughout the center.

Packaged Units Found To Be Economical To Install, Operate In Shopping Center

BARBERTON, Ohio—Installing five 7½-ton General Electric packaged units in the F. W. Woolworth Co. self-service store in the new Magic City Shopping Center here turned out to be about the most important installation that Max A. Weisbrod of Refrigeration Distributing Co. in Canton, Ohio ever made.

So pleased were the builders with that installation, he said, that they decided to use G-E package units throughout the center.

"To date, we have installed 300 tons of G-E air conditioning in the center," Weisbrod said, "and have about the same amount still to install."

Weisbrod worked with Woolworth's engineers to provide zoning, proper air distribution, and ventilation for both heating and cooling in the new store—all at a very competitive price.

By using packaged units, he declared, the problems were surmounted. Great savings were made by reducing the sheet metal work needed, by cutting refrigeration installation costs, and by using a single set of water piping for heating and cooling.

The heating phase was somewhat complicated by the fact that the store required heating, but no air conditioning, for the basement, which is the same size as the main floor.

Basement heating is accomplished by hot water blowers attached to the piping running to the

air conditioning units. The piping was conveniently placed so this could be accomplished. Hot water blowers were also installed over entrances and exits. These are controlled by thermostats.

"By using the self-contained air conditioning units with heating coils in each unit, we had accomplished a five-zone conditioning system without having elaborate face and by-pass dampers of an extensive duct system.

"This meant that it would be economical in operation as only those units that were needed would be operated.

"These units were also supplied with 100% fresh air openings through the roof so that outside air could be used in the 'in-between' season for economical operation in air conditioning.

"A single pipe line was used for both the heating and for water circulating from the tower to the units. During the cooling cycle, the boiler and the various heating units were by-passed. The same circulating pump was used on both cycles. This was accomplished by having a set of by-pass valves on each of the air conditioning and heating components."

Russell Polak, who conceived and built the \$3,500,000 shopping center, said that he decided on packaged units because they saved space, reduced installation time, cut maintenance an estimated 35%, and provided flexibility.

He estimated that in one of the larger stores, he saved \$10,000.

'Built-In' Packaged Unit Preserves Appearance of Restaurant

DENVER—One solution to the problem of using package air conditioning without interfering with restaurant appearance, has been developed at the Merchants Park Restaurant, smart food service institution, in a sub-street location at the Merchants Park Shopping Center here.

Louis Mohar, owner of the restaurant, was well aware that air conditioning would be required at various times throughout the summer months, despite Colorado's general over-all cool climate, but at the same time did not feel satisfied in installing a heavy-tonnage, over-all cooling system of the remote type.

Denver Engineering Co. was called in, and developed the "ideal" solution in the installation of a 5-ton Worthington package unit at a point midway along the left wall of the restaurant, where maximum benefit could be obtained at both a counter rail and a booth area to the right.

The brick wall was so constructed as to leave a niche into which the Worthington package unit neatly fits.

Space was likewise provided for the overhead duct and grille for providing some 7,500 c.f.m. of air cooled to 70-65° F.

To hide the juncture between the brick wall enclosure and the package unit, a hardwood "picture



NEAT and space saving is this Worthington installation in the Merchants Park Restaurant. Removal of the "picture frame" around the unit allows it to be rolled out for servicing.

frame," 6 in. wide, was built. This attaches neatly to concealed brackets, and "frames" the air conditioner attractively.

Whenever it is necessary to remove the unit for any reason, turning six wood screws is enough to lift away the "picture frame" and roll the cooling unit out of the wall.

The curved duct at the top, which feeds cooled air out into the restaurant, is detachable from the

cooling console proper and the grille outlet itself did not require a similar "picture frame" inasmuch as it fitted the opening so tightly that there is no apparent "break" between the metal and brick surfaces.

As a result, the package cooler installation is neat, eye-appealing, and out-of-the-way, all at the same time, with all supply lines and service connections completely concealed.

Now Research Proves

acid causes

refrigeration system breakdown!

Here's Harry Alter's
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No. 161...

1954

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Controlled Temperature Increases Efficiency

Machine Tool Manufacturer Maintains Tolerances of 1/10,000 of an In.; 10-Ton System Holds Constant Temperatures for Seasoning, Working Metal

TOLEDO — Air conditioning is enabling Baker Bros., Inc., machine tool manufacturer here, to maintain tolerances of 1/10,000th of an inch in its jig boring room.

Without the constant temperature maintained by the 10-ton Worthington system, dimensions varied as much as 3/1,000th of an inch, Richard Messmer, assistant plant manager in charge of the jig boring room, reported. The need for more accurate boring led to the air conditioning installation.

The installation was made by the air conditioning division of the Lumm Corp. which claims to be Toledo's largest ventilating and air conditioning contractor. Robert Greenwald, manager of this division, designed the system.

Constant Temperature Vital

Purpose of the system, Greenwald stated, "is to maintain the room temperature constant to permit the extremely close machining tolerances that are required on the parts produced. The temperature at which the room is held is not critical as long as it does not fluctuate, so 80° F. for summer and 72° F. for winter are the normal settings."

A machinist commented that all stock is brought into the room 24 hours in advance so that it can be "seasoned" to room temperature before boring operations are undertaken.

"Control of humidity is not a necessary item," Greenwald explained, "but this was added after the system was installed because high relative humidity caused rusting of machine and work surfaces when the cooling load was low. This occurred during week-end shutdown of machining operations and when the ambient wet and dry-bulb temperatures approached the saturation point. No humidification methods were provided for the heating season."

The jig boring room measures 48 ft. long by 24 ft. wide, and 18 ft. high. It is of cement block construction with eye-level windows providing complete visibility from all interior sides.

The room houses three jig boring machines, which provide most of the heat load themselves. A ceiling height duct extends the length of the outside wall and six evenly spaced outlets discharge the conditioned air across the room. The return air outlet is located at the

base of the wall adjacent to the air conditioning equipment.

The air conditioning machinery is installed in a fenced enclosure just outside the room. Thus, machinists working in the room are not interrupted if servicing of the equipment is necessary.

10-Hp. Water-Cooled Unit Provides Cooling

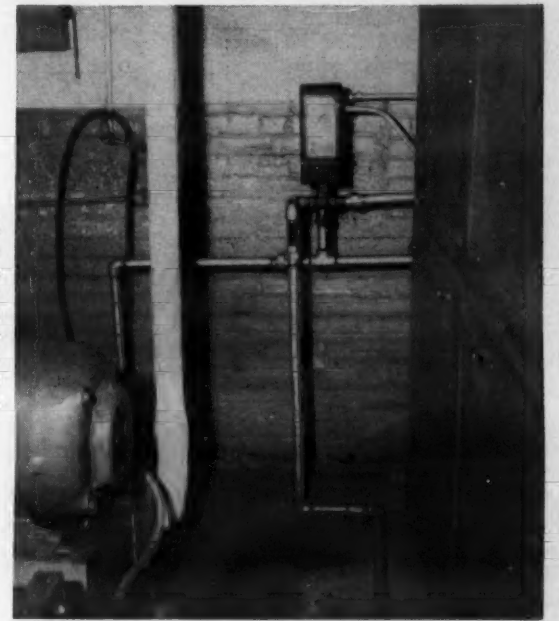
A Worthington model 3JS4 water-cooled refrigeration unit provides the required cooling capacity. It consists of a 4-cylinder compressor, belt driven by a 10-hp. motor, and a water-cooled condenser. It is equipped with an automatic capacity regulation control that unloads two cylinders on a drop in suction pressure.

A Kennard model 215-AC vertical air conditioning unit cools, heats, filters, and circulates the air for the system. It has a direct expansion cooling coil, steam heating coil, and water reheat coil. The centrifugal fan is belt-driven by a 2-speed motor.

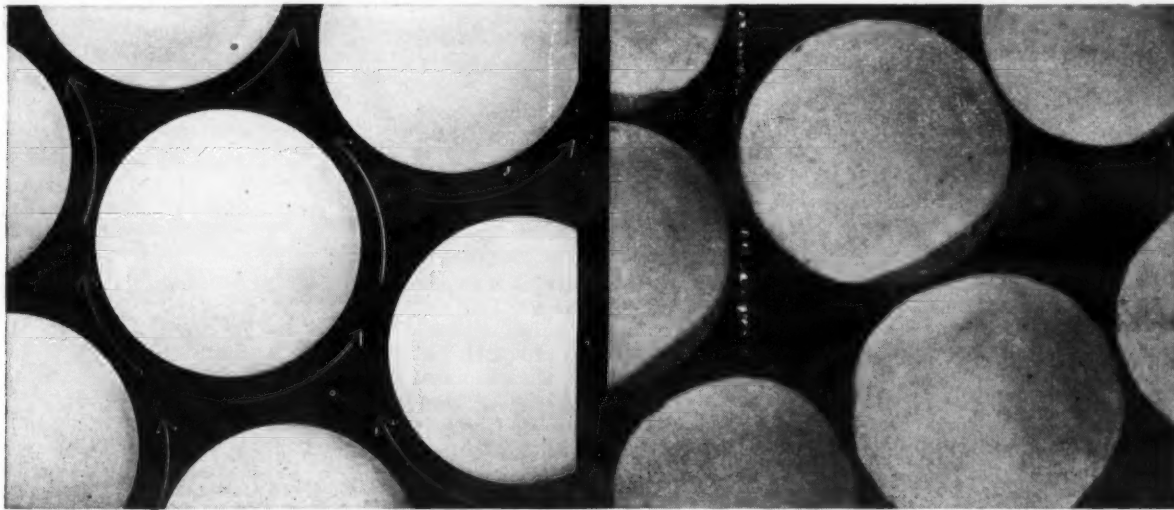
The cooling control thermostat operates a solenoid valve in the refrigerant liquid line to the cooling coil, causing it to open on a rise in temperature. The refrigera-



TO MAINTAIN TOLERANCES of 1/10,000th of an inch in this jig boring room, Baker Bros., Toledo machine tool manufacturer, installed a Worthington 10-hp. air conditioner to hold temperatures constant. Humidity control is also necessary to prevent rusting.



THIS MODULATING THREE-WAY VALVE causes the water leaving the condenser (L) to pass either through the reheat coil (when necessary) or directly to the sewer drain. This is the heart of the humidity control system.



Pelletized spheres distribute flow, eliminate channeling.

Greater surface area traps more sludge and moisture.

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(100% ACTIVATED ALUMINA)

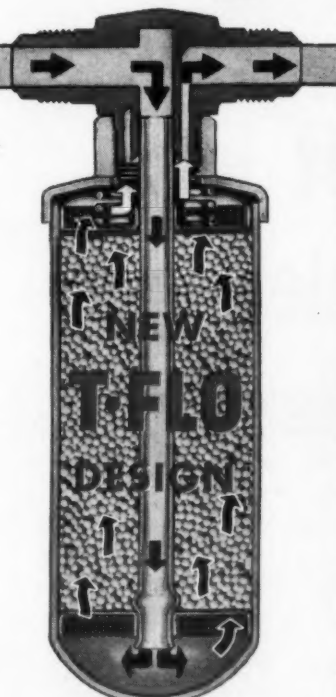
removes acid!

Activated alumina in pellet form makes Ansul's new Andrite the double-duty desiccant. Its thousands of fast drying surfaces dry deeper—pulling moisture content way down. But even more important, Andrite removes acid, cleans up the chemical condition that causes sludge and corrosion—the major cause of refrigeration system breakdowns.

Designed for the revolutionary Ansul T-Flo Drier, Andrite won't break down or dissolve to plug filters or damage compressors. And the drier is easy to install, too. Even replacement of the drier cartridge saves time, because it screws in like a light bulb. And no tools are needed. For fewer call-backs, speedier servicing, change to Ansul. And be sure to give new equipment double protection in acid and moisture removal. Use Ansul T-Flo Driers with Andrite.

For more information or answers to your refrigeration problems write to: Ansul Chemical Company, Refrigeration Division, Dept. D-1, Marinette, Wisconsin.

DuPont "Freon," non-foaming oils, sulfur dioxide, methyl chloride



SCREWS IN LIKE A LIGHT BULB!

tion unit operates on pump-down control independently of the cooling thermostat and the cylinder unloading occurs on a drop in suction pressure.

The heating thermostat operates on a modulating steam valve on the heating coil. It is independent of the cooling control and must be set no less than 3° F. below the cooling control setting to avoid a conflict between the two.

The humidistat operates a modulating 3-way valve causing the condenser water leaving the refrigeration unit condenser to pass through the reheat coil or go directly to the sewer drain. As the valve positions to permit reheat it actuates an auxiliary switch on the valve motor shaft to open the refrigerant solenoid valve, acting in parallel with the cooling thermo-

stat. The refrigeration unit starts under pressure control when the solenoid valve is opened.

The humidistat is set at 40% r.h. to prevent condensation on metal surfaces in the room.

All temperature and humidity controls are manufactured by Barber-Colman Co. except for the humidistat and 3-way water valve on the water reheat coil, which are made by Minneapolis-Honeywell Regulator Co.

"The results obtained with this air conditioning system have been quite satisfactory and have made possible the production of parts to the very close tolerances necessary," Greenwald said.

"At the same time, the productivity and efficiency of the machinists working in the room have been increased," he added.

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REFRIGERATION RESEARCH

BRIGHTON, MICHIGAN
BRANCH FACTORY — GREGORY, MICHIGAN

Offer of Free Swimming Lessons Draws Parents to Dealer's Store for Registration, Demonstration

ST. LOUIS—An offer of free swimming lessons to children and a certificate of proficiency at the end of the course attracted hundreds of kiddies—and their parents—to the Hesse Co. appliance store in north St. Louis.

Harry Hesse, owner, set up the promotion when the local Lion's Club of which he is a member embarked on a campaign to lessen drowning deaths and similar tragedies, by teaching more youngsters to swim.

Sparkplugging the program, Hesse enlisted 10 members of the Lion's Club who agreed to donate sufficient time to train three classes of youngsters under 12 years old on alternate days through the entire summer.

Likewise, Hesse obtained four young instructors, certified by the Red Cross as life-saving experts, to supervise the classes and to rotate their time in the store explaining the system to interested parents.

A local swimming pool cooperated with the appliance dealer by providing the training facilities. Hesse used quarter-page newspaper advertisements to announce the program. Any youngster, he pointed out, would be taught to swim a minimum of 25 ft. without aid, and would then be given an engraved certificate testifying to the accomplishment.

A local weekly newspaper supported this undertaking with editorial material and the publication of photographs. A local distributor arranged for comedian Bob Hope, visiting in St. Louis, to visit the store for a personal endorsement of the campaign, accompanied by Russ Brown, his band leader.

Mrs. Joan Hesse, the dealer's wife, is a competition swimmer herself, who twice won the Ozark A.A.U. laurels as synchronized swimming champion. She pitched in both at the store and at the swimming pool.

Total registrations for the summer were more than 350, most of whom received the Lion's Club certificate awarded through the Hesse store.

From a strictly business standpoint, the venture was a decided success, Hesse declared, inasmuch as every youngster, at one time or another, brought his parents along. The parents were given on-the-spot demonstrations of automatic washers, refrigerators, ranges, and similar appliances set up opposite the registration counter.

Hesse believes that the new contacts made with parents will lead to many appliance sales. Because of the high interest which the north St. Louis community took in the event, Hesse plans to repeat it.

Worthington Executive Offices Move to New Bldg.

NEW YORK CITY—Worthington Corp. has moved its New York executive headquarters and New York district sales and export offices to larger quarters at 99 Park Ave., the company announced recently.

The recently completed building, aluminum clad and modern in design, is air conditioned throughout by Worthington central station equipment.

Worthington will occupy the entire 20th floor, plus a show room on the ground floor adjacent to the main entrance. Here an educational exhibit, including a display of Worthington and Mueller Climatrol air conditioning equipment and other Worthington products, will be opened to the public July 1st.

The move uptown is in keeping with Worthington's policy of expansion and modernization, particularly in the air conditioning field. During the past year Worthington built a new plant in Decatur, Alabama, for the manufacture of air conditioning equipment; concluded an agreement for the purchase of the L. J. Mueller Furnace Co. of Milwaukee to round out its facilities for producing year-round residential air conditioning systems; and made additions and improvements to its plants at Plainfield, N. J., and Holyoke, Mass.

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

"Our public relations," Secretary Tom Dowd milded, "are the nine men who play for us out on the field."

"Well, then, where are they?" Carpenter fired back.

And Another Thing...

Is spring training necessary? Normally there'd be no argument. But the case of Ed Roush (Giants, Reds) raises the question.

Annually Ed was a hold-out. It wasn't that he was greedy for money. Always he settled for a sum not far from the owner's original offer. But holding out enabled him to avoid spring training camps, which he detested.

Did it affect his work? Not so you could notice it. He led the National League in batting, was considered one of the greatest ball-hawks in history, and racked up a lifetime .327 average.

Managers Can Be Valuable—or Ruinous

Why do so many promising rookies fail? Branch Rickey agrees with the late John McGraw on one sure reason. They're ruined by over-coaching.

McGraw never interfered with the stance (however unorthodox) of any kid who could hit. On the other hand "Jawn" didn't allow a major leaguer to think for himself. He was a martinet after a boy was promoted to "the Gints."

For instance: classy manager McGraw let 17-year-old Mel Ott lift one leg and drop the opposite arm at the plate. Said stance was awful. Nevertheless, Ott surprised everybody BUT McGraw by looping more home runs than anyone in National League history.

Likewise, Branch Rickey—who is perhaps the greatest baseball "brain" of all time—allowed "naturals" to be eccentric.

Branch couldn't be everywhere; and neither could McGraw. Many promising young ballplayers thus slipped out of their paws—ruined by poor advice.

In one of his interminable speeches Rickey averred that mediocre managers in the minor leagues resent "hints of greatness" on the part of talented ballplayers. According to Rickey, "managers

bolster their egos by smashing a genius down to the level of the team. Time after time, all they do is ruin the fellow who does things differently."

Example:

Unorthodox Yogi Berra, ordered to: "Put your shoulders into it; keep your head down; hold your feet solid"—lost a hundred points in his batting average, and became a devotee of osteopaths and chiropractors—until Stengel allowed Berra to be himself again.

The Wayward Press and Radio

Milwaukee's Billy Bruton did well in 1953. This rookie's biggest thrill came when he stole second at the expense of Brooklyn's Roy Campanella.

"Nobody had stolen a base on Campy since September in 1952," Bruton reminds us. "I broke down to second. He had the peg right on the base, but I slid under it. Ball-players like to read what they did in newspapers. I got up early to see what the sportswriters would say about my great feat."

"And I expected a picture too," he added.

To his immense disappointment, he found this Sports Page headline:

'IS CAMPY SLIPPING?'

As a radio twosome, Van Patrick and Dizzy Trout fracture Detroit Tigers listeners.

Example:

"I see where a magazine writer claims a curve ball is an optical illusion," Patrick observed. "Diz, do you believe a curve is a figment of a ballplayer's imagination?"

"Tell me what figment is," responded Trout, "and I'll answer your question."

First big league manager for whom Warren Spahn (Boston and Milwaukee Braves) pitched was Stengel.

Twelve years later Spahn boasted:

"I knew Ol' Case when you could understand what he said."

M & E Appointed McQuay Refrigeration Wholesaler

MINNEAPOLIS—A. B. Bayer, manager of the Refrigeration Dept. of McQuay, Inc., has announced the appointment of M & E Refrigeration Accessories Co. as one of McQuay's refrigeration wholesalers in the Philadelphia metropolitan area.

Helmar W. Petersen, general manager of M & E, advises that an inventory of McQuay refrigeration products will be maintained in the firm's warehouses.

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in ROOM AIR CONDITIONERS



Another Victor FIRST
Constant Window Air Conditioner 1/2 hp

Complete Sales in Victor Room Air Conditioners... 1/2 hp, 3/4 hp and 1 hp

and in QUICKFREEZERS...



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(Each occupies only 11" x 13" counter space.
Each gives the desired quantity as wanted.)

KRUSHT-ICE Ice Crusher

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SNOW-ICE Ice Shaver

In a flash, this automatic ice-shaving machine supplies sanitary snow ice for SNOW BALLS and SNOW CONES. Also fine for bar use.

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Commercial Refrigeration

Best Year Yet for Store Modernization Due In '54, Maintain Tells Conference

WOBURN, Mass.—At the annual store modernization conference held here recently at the Maintain Store Engineering Service plant, Russ Maintain told the 36 attending dealers that 1954 would see a greater number of stores modernize their facilities than in any other period in the history of retailing.

"Those merchants who fail to keep pace with modern merchandising trends face a declining share of their local market," Maintain said, "while those who modernize both their thinking and their stores will win new customers and develop greater volume."

"In nearly every large community there are certain outstandingly successful stores," he continued. "Their 'formula' is quite simple: They do everything possible to draw in new customers and keep them coming back; they continually strive to increase their unit sales to both old and new customers; and they do everything possible to cut down work, overhead, and costs of operation."

"The modern store is actually a machine for selling. It is beautiful, colorful, relaxing, and inviting to enter. Its general atmosphere is warm and friendly. It is laid out for completely controlled circulation to bring the customers into contact with a maximum amount of merchandise for sale."

"It has as much self service as possible, varying with the type of store and the type of merchandise. It has a maximum amount of its floor and wall area for display and employs modern multi-level, flexible fixtures."

"Store fixtures themselves," said Maintain, "are no magic solution to modernization. They must be solidly backed up by a complete store engineering job—laid out by a competent store engineer."

"Such a man not only knows how to completely modernize the physical plant, but also knows where to place merchandise for the best sales strategy, how to encourage impulse buying, and how to cut down costs of operating the store."

Color and lighting alone are now deep science having important psychological effects on customers with power to attract or repel them, Maintain said. They can put them in a happy buying mood or have a depressing effect that subconsciously restrains impulse buying.

"Almost all existing stores not built within the past year face the

need of expansion if they are to increase their volume," he asserted. "Either they must modernize their present facilities—to display more merchandise in less space—or add more floor space to keep up."

"A store having conventional counters, display tables, and wall shelves can frequently display up to four times as much merchandise by converting to modern multi-level, all-purpose Maintain adjustable shelving, without adding a square inch of new floor space. This fact alone has allowed many a store to multiply its volume in a location where no space existed to build an addition."

There will be a series of additional Store Modernization Conferences held by the Maintain Store Engineering Service during 1954 to prepare new dealers for the store engineering field, Maintain said. The next conference will be held on April 15.

Ace Donates Ice Cream Cabinet To Aid Veterans

NEW BEDFORD, Mass.—Ace Cabinet Corp. here has donated an ice cream cabinet to the Brooklyn Veterans hospital, it was announced by Milton Herzer, vice president.

In a letter to Herzer, Norman D. Lavoie, chief of special services of the hospital said:

"You may rest assured that this cabinet will be used to its maximum capacity for ultimate benefit to our patients. To those of us who are engaged in this work of caring for the hospitalized, the ready response of organizations such as yours, in making items such as these available, is a source of deep gratification to us. Your general gift is a reminder to those who served in the wars of our country that their efforts have not been forgotten."

Koch Leases 20,000 Sq. Ft. Of Manufacturing Space

NORTH KANSAS CITY, Mo.—Koch Refrigerators, Inc., manufacturer of commercial-type refrigerators, has leased 20,000 additional square feet of floor space here to increase its manufacturing operations. The company already occupies 150,000 sq. ft. in three other buildings.

Knox To Supply Sunroc Co. With Milk Dispensing Cans

GLEN RIDDLE, Pa.—Sunroc Co. and Knox Metal Products, Inc., Knoxville, Tenn., have announced the signing of a long term contract under which Knox will supply all Sunroc's requirements for milk dispenser cans for Sunroc's new line of refrigerated bulk milk dispensers.

The Sunroc milk dispenser can, of the side opening recess type, will be the sturdiest commercial milk dispenser can on the market, Sunroc declares. It will be of welded steel construction, hot dipped in tin, with a 5-gal. capacity.

The new Sunroc milk dispenser will be marketed through the company's national sales organization, and will be available for commercial, industrial, and institutional mass feeding establishments.

Sunroc announced a new price of \$7.75 per can, well below the present market, on contract deals.

Dubious Druggist Finds Candy Case Pays for Itself

GALLUP, N. M.—M. R. Pinos, who owns the Pinos Drug Co. here, was rather dubious about how much good his new refrigerated candy case would do him. He was skeptical about the salesman's talk that it would pay for itself.

Pinos decided to find out if it would or not. So he clipped a notebook to the back of the case and marked in it a percentage of each sale, which he charged to refrigeration.

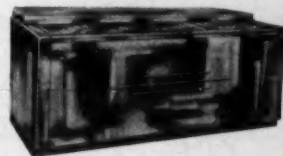
The New Mexico druggist was surprised at the results. Boxed chocolate sales went up immediately and have been climbing steadily ever since.

"For one thing, the refrigerated case made it possible for us to display gift boxed candies through the hot summer months," Pinos said, "and, surprisingly, a large percentage of the tourists who came through Gallup through the summer months turned out to be candy purchasers."

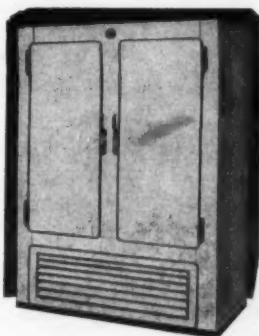
"Also, we found that even the local Indian population showed a sweet tooth for candies, which hadn't evidenced itself before the refrigerated case was installed."

The case paid for itself in exactly 23 months, and has now operated for three years without repair expense of any sort. Candy sales at the Pinos Drug Co. are up approximately 250%.

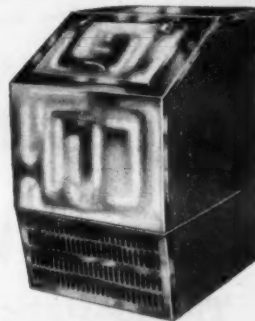
BLUEBIRD BOTTLE COOLER



KUBE KING AUTOMATIC ICE MACHINE



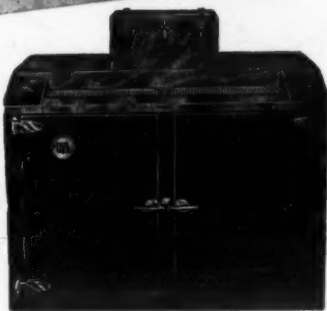
REACH-IN COOLER



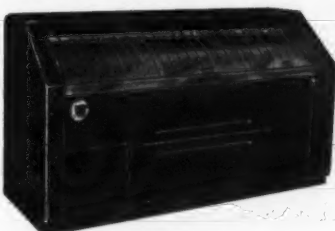
METAL WALK-IN COOLER



DIRECT DRAW WITH REFRIGERATED FAUCETS



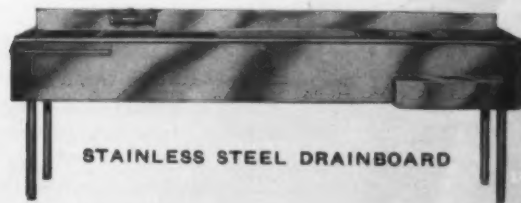
SELF-CONTAINED LA CROSSE BOTTLE COOLER



LA CROSSE ICE CUBE MAKER



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More Questions-Answers on Residential Air Conditioning as Discussed at Forum

WASHINGTON, D. C.—This is the fourth and final article in the series presenting the transcribed report of the forum on residential air conditioning held here recently by the Baltimore-Washington section of the American Society of Refrigerating Engineers. The NEWS was privileged to tape record the entire forum.

Published in the preceding issues were the formal talks of F. Dunning Rupprecht, who served as moderator; Curt Mack, assistant commissioner, underwriting, Federal Housing Authority; Harry Sarshik, president, Home Builders League of South Jersey; George S. Jones, Jr., managing director, Air-Conditioning and Refrigeration Institute; and C. W. Nessel, chairman, field investigation committee, National Warm Air Heating & Air Conditioning Association.

This instalment concludes the question-and-answer session which followed the formal talks.

What Is Builder Doing About Future Servicing?

Q. What consideration are you as an operational or project builder giving to the tenants who are going to occupy your premises to the servicing of your equipment that you put in for them after they have occupied it and you're out of the picture?

Sarshik: That is almost as much at the heart of the problem as the responsibility of the design of the equipment. No. 1, it comes back to the manufacturer because at the moment he is the only one with enough technical knowledge

and the ability to disseminate it into the field to be responsible for a particular installation.

It follows, therefore, that when we put a \$700, \$800, or \$900 piece of equipment into somebody's house, some type of guarantee should go with that equipment. We insist that our manufacturer who is on the project incorporate a five-year warranty on the compressor in his bid. Now that is the most expensive part of the whole equipment—the compressor—and we insist that that be in the bid.

No. 2. We render one-year free servicing on the unit. That again is included in the purchase price.

Beyond that there is nothing that a builder can do other than do permanent maintenance and then he might as well rent his houses instead of selling them.

Mack: I would like to interject apropos of the question of competency of installation. We think in terms of long-term use and investment. With due respect to my builder colleague, actually the builder's function is to produce. If in fact he gets into a servicing contract he becomes maybe a maintenance man, and that normally is not his function.

In attempting to avoid difficulties in connection with this problem of adequate installation, not going so far as to try to think in terms of maintenance, some of you gentlemen may remember that in our first releases and advices to our 74 insuring offices and 115 FHA offices we said that the submission must be accompanied by a statement of a licensed air conditioning engineering individual or firm.

A very virtuous, pontifical, easily made statement that is just as natural as trying to earn an honest buck.

Unfortunately, we fell afoul of some of the realities and practi-

calities of life, and we threw it out. We found that in most communities, the smaller communities, there weren't any licensed installers.

And I was thinking here, not to belabor this subject, that I remember back farther than some of you when we got our first automobile. It was a 1910 Cadillac. It was full of bugs, but it ran. Some of us have bought new cars yesterday, or today, and I venture to say to you there are a few bugs in those.

I think that this, as we have said, is a growing industry. I'm very optimistic about it. I think we're going to have a lot of trouble. We're going to have some bugs. We are looking to the manufacturer of this equipment.

If there's trouble, there isn't much FHA can do about it. We're an insuring company. We insure mortgages. If it's a bad pitch, well, it's too bad. But the next time your equipment comes in, we're going to take a second look at you.

There's an old Chinese saying: "Fool me once, shame on you; fool me twice, shame on me." I know nobody is trying to fool anybody, but if it doesn't work, it ain't going to be so good the next time.

Jones: What I'm saying is in no way, and I repeat what I said earlier, based on a desire to shirk any responsibility. But I do want to point out to you, as has already been implied and actually stated in at least one instance, that there is a division of responsibility here that must be recognized before we can put our finger on the real problem.

The manufacturer will and does guarantee his product. Given an opportunity, he will participate in the guarantee of its performance when installed. But as long as that manufacturer has nothing to say about the location or the conditions under which it is installed, I think I must insist that he cannot be held responsible for the results therefrom.

We've got a piece of product that will do so much in the way of B.t.u., so much in the way of cooling capacity as such under rated conditions, and we can and I think do live up to that.

But when that's placed in the hands of the tinner that's referred to by my friend Bill, without any consultation with the manufac-

turer, I have to insist that the manufacturer be relieved of the responsibility beyond his unit guarantee which he still is perfectly willing to perform.

And Mr. Mack, with all due respects to your bureaucratic and humane comments, I don't think you can look to the manufacturer to answer all of your problems when it comes to the finished installation.

Mack: Of course not. That would be unreal, I'm sure. But we're not in a position to make fine distinctions between the manufacturer and installer and the builder. The fellow we'll really look to is the builder. He's the guy that is the middle man as far as we're concerned.

Home Design Inadequate For Air Conditioning?

Q. I have a comment, not a question. All the problems that you people have been talking about tonight that will have to be ironed out in residential air conditioning have been ironed and thoroughly gone into in the past 20 years. The Federal government has been building and installing constant temperature and humidity rooms without much success. All of these problems that have come up have been attended to.

People don't face the fact that the design of present-day houses isn't adequate for air conditioning. And the problem lies with the designer of the houses, not with the manufacturer of the equipment. There's equipment on the market today that can do any of the jobs that have been specified, including this matter of heat exchanger rusting.

It's a matter of the design of the home. And then beyond that when the man is designing the house he has to see to it at that time that the system is designed properly to adequately cool the house.

Sarshik: I think that if we would build the home the way the air conditioning engineer would want the home built, we would wind up with a product that we could probably heat with a candle

(Continued on next page)



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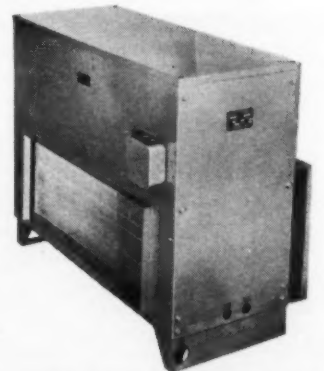
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What Type of Air Distribution Is Best For Year-Round Residential System?

(Continued from preceding page)
in the wintertime and cool with an ice cube in the summertime. But remember, we're not out to sell air conditioning. That's not our business. We're out to produce a home, and we produce it under pretty tough competitive conditions.

It's impossible to take into account all those various factors. Sure, we're not going to build an open barn and let you boys come in and air condition it. But just as you have designed your equipment over the past 20 years, our building has been in existence for at least 20 years, and you know by now the type of product we're building.

I say it's up to you to advise us where we can make modifications to help your equipment along, and then design your equipment to meet our conditions.

Have Good Equipment To Cool Any House

Q. There is good equipment available to cool any type of house a person wants to build. But in order to cool that house it does have to have certain things done to it. If you're going to maintain constant humidity, as you talked about, it's reasonable to assume a reasonable temperature. And I used to be an architect. It can be done in small spaces and all construction, but the houses we're building today, except for radical changes in roof lines and mass, haven't changed appreciably in type of construction.

Best Type of Outlet For Combination Job?

Q. I don't believe any mention has been made of air distribution. For a combination heating and cooling residential job would you say overhead diffusers, high side wall grilles, or low side wall grilles would be the best?

Nessel: I did make the comment that I strongly suspected that the houses we found in Texas that had the best air conditioning systems probably had the louisiest heating systems. I'll amplify that just a little.

In the jobs that we have observed, and there've been about 40 of them, we have found that probably the closest floor-to-ceiling temperature differences, if you want to evaluate performance in that direction, took place with those registers that were of a rather patented design in the ceiling. We had several such jobs

where there was less than $\frac{1}{2}^{\circ}$ between the floor and the ceiling.

And we had some high side wall jobs, which is the prevailing type of installation in Texas. Those high side wall jobs did very well, probably gradients there of 1° to 3° from floor to ceiling. In some cases the ceiling was a little bit cooler than the floor.

We also know from our heating studies that those jobs that deliver heat in at the ceiling, with Texas type of construction again, and take the return air back to the furnace off the floor, will have heating gradients from floor to ceiling of anywhere from 15° to 45° .

So here you have a house with a fairly good cooling system and a terribly, terribly poor heating system.

We have discovered that air can be put into the rooms from low side wall registers which are better with respect to heating than high side wall. They can be put in low side wall, provided the air blows up and not straight out.

And it can blow straight out, too, as far as that's concerned, if the house is large enough so nobody has to sit in front of it. But if it's a small house, and occupancy requires that people sit close to such a low side wall register discharging cold air, they are going to be, and are, very uncomfortable.

We have discovered that putting the air into the structure for both heating and cooling in small perimeter registers around the outside edge of the house, or preferably in the floor, and you can also put them low side wall under the windows, we get very lovely heating results. Return air is taken from the ceiling.

We have found that on the cooling cycle we can get very satisfactory cooling from the comfort standpoint from registers so placed provided the velocity from the floor register is high enough to get the air up into the room a little ways.

With low velocity jobs we found trouble. With jobs that had enough velocity to project the air up toward the ceiling, we had gradients that were not more than 4° or 5° from floor to ceiling and probably only 2° or 3° from floor to the 60-in. level or the 5 ft. 6-in. level.

Now we are most concerned in our field test work with respect to the gradients from floor to the 5-ft. 6-in. level in cooling. We don't care very much what it is up against the ceiling because we're not living up there. Actually,

you're probably operating the plant a little bit more economically if you let a little warm air stay up at the ceiling and keep the cold air down in the occupied zone.

We've also got a job we tested down South, and I want you fellows to hang onto your seats now, that was 3,600 sq. ft. It had a big crawl space under the house, a well prepared crawl space about 24 in. deep with a cement slab on the crawl space earth.

All of the cold air, as well as the heated air in the wintertime, was just dumped into that crawl space from the conditioner. It had about a 2-ft. piece of ductwork extending out in three directions from the plenum under the unit. The unit was up against one side of the house in about the middle of the side.

The air came into the house through registers that were nothing more or less than a crack in the baseboard, an adjustable crack, if you please. An adjustable member of the baseboard could be raised and lowered to adjust the crack all around the outside of the house. There was a piece of nosing on the floor that sort of directed the air up at, I would say, a 90° angle from the floor. All the return air was taken back to the cooling unit from the ceiling.

There was no room in that house, as I recall the data, where the temperature gradients from floor to ceiling were in excess of 5° .

Now I would say that you can

put the air into the house for both heating and cooling most any place if you go about it right. But I do want to point out to you that when you put air into the space at the ceiling, you're starting with some strikes against you unless you can get the floor warm and get the heat down to the floor.

And in these typical jobs where we have a highboy furnace blower air out of some high side wall registers, and in turn using those same registers for cooling, we have found we do a lousy heating job and an excellent cooling job.

But when we design the thing for heating and direct the air up toward the ceiling, we can do an excellent job both heating and cooling.

What Is FHA Procedure If Buyer Adds Cooling?

Q. I'd like to put this question in the form of an assumption. Assume I'm the builder building a single home for \$15,000, and the buyer of this house decides he wants a \$1,000 air conditioning system installed in the home. Exactly what does FHA do? How much will you allow me? How much more would I have to charge the buyer? What is that sequence step upward?

Mack: Briefly, it would go like this. Firstly, we would be confronted with an application which did not involve the inclusion of air-cooling equipment. We would process that case just like any other

case. We would cost estimate it, we would value it, we would make inspections during construction.

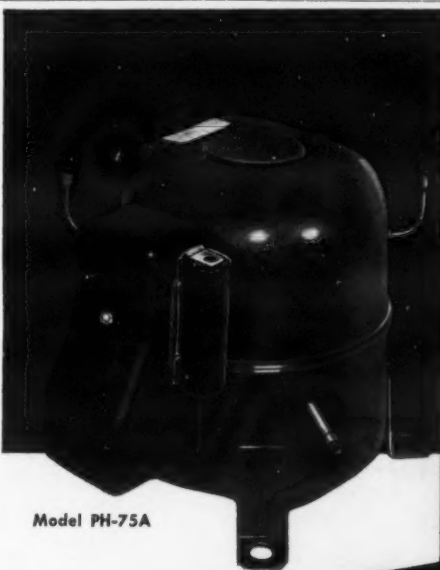
If during construction, or before the final completion, the builder found a buyer who would like to include a certain type of air-cooling equipment, and they agreed on what it should be, then that case, to reflect the benefits of that addition, would come back to us as a re-application for reprocessing. We would again adjust our cost estimate and presumably adjust our value to reflect the opinion of the processors, the underwriters, in the office of the value of the product as revised. There's no cost to that; not too much time involved.

Whenever you change the specifications on a deal, it's like anything else. You have to tell the other parties to the contract what you're doing and get their acquiescence. That's all. It doesn't matter whether that was originally specified or specified subsequently, we would recognize it on what we call a reprocess or rework.

How Much Value Will FHA Approve?

Q. My thought was the builder is charged \$1,000 by the contractor for air conditioning. And assuming that it's a reasonable value, how much of that would you underwrite, and how much more of a down payment would the buyer have to put on the line to be eligible for that extra?

Mack: It's difficult to answer (Concluded on next page)



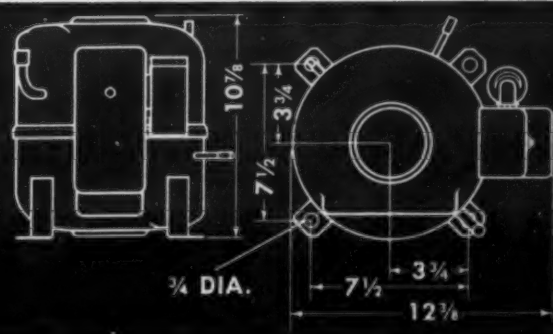
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FHA Official Outlines Views on Cooling--

(Concluded from preceding page)

that categorically. Firstly, we would include in our cost estimate the cost of that equipment as nearly as we could ascertain it to the builder. Because then when we finish we add what we call our typical overhead and profit mark-up. That applies to all elements of the construction of the property.

Now if it were in, say, the \$15,000 range as of now, and went up to \$16,000, and our valuation reflected the full cost of the equipment, then the maximum increase would be 80% of the difference, or \$800, because under the statutes we can't insure in that price category more than 80% of our estimate of value.

The net result of that would be an increase, if you figured a builder's overhead and profit of 10%, in the down payment of \$220, or 20% of \$1,100.

Didn't Recognize Value

Sarshik: I would like to say, Mr. Mack, that you're fully aware of this problem—that many of the men in the field who are in charge of the valuation are not quite as cognizant of the necessity of air conditioning as you are. And that in their reticence they are not giving us the proper valuation to help sell or include air conditioning as part of our packaged deal to the customer.

I can think, again this goes back a year ago when many of us weren't quite sure in which direction residential air conditioning was going, that some of the local field offices on this hypothetical \$1,000 installation wanted to offer us a valuation of \$300 to \$400, probably as much as they would for a Bendix duomatic or a double-door refrigerator.

So, of course, you can see the foolishness there. I think under Curt Mack's prodding the field offices have come along a good way but have not yet approached what he would like to see, but what the builders would like to see—this full 80% allowance, if it's in that particular price category.

Little Interest In North

Mack: I think your comments are very well made. Remember, I said assuming that the valuation would be fully reflected as to cost. If I may take just a minute, last summer I made a trip visiting our offices over 7,000 miles, which included cities like Cleveland, Chicago, Milwaukee, Minneapolis, Sioux Falls, Rapid City, Helena, Spokane, Seattle.

In each office I asked those boys, "how about air cooling equipment. Are you confronted with it? Are you getting applications?" And with one or two exceptions they said no.

And I said, "Well, have you talked about it? What will happen when and if they do come in?"

Why they said, "I don't think the market will pay for permanently installed air cooling up here. A 20-in. fan is all they use in Fargo, N. D." And I think they're right. And if I were doing valuation work I doubt very much if I would reflect the cost of an air-cooling device up there.

A Matter of Climate

But you go down to Phoenix, Tucson, and all through that area, and from there on down, and I think you'll find the boys jump at it and are rapidly coming to the conclusion that there's some obsolescence built in anything above \$10,000, \$12,000, \$14,000 that doesn't have some cooling facilities. It's a matter of climate.

Jones: Do you make a distinction in the matter of climate in the amount you insure for heating?

Mack: We would make a distinction I assume, but heating is now so universally localized. If someone came in, say, with a Kewanee boiler in a five-room or six-room or eight-room house in Miami, I doubt that they'd give them a thin dime for it insofar as value, but in our cost estimate we'd reflect it. It's there, but I don't think they'd give it any value over a fireplace, and if they did I'd start to worry about them.

'Rolling Shops' Do Big Job

How Service Helps Sell Air Conditioning; Satisfied Customers Are Best Advertising

WACO, Texas—There is no element more conducive to the continued success of the air conditioning firm than consistently good service, according to A. R. Nuckols and William Cathey, heads of Nuckols-Cathey Co. here.

Now doing a volume of more than \$500,000 a year, after less than seven years of operation, Nuckols-Cathey has "constantly substituted service for advertising" as Nuckols put it.

Had To Choose Between Advertising and Service

"Back around 1946, we had our choice between investing in the usual forms of newspaper and radio advertising, or putting the same amount into additional service equipment," he said.

"We thought it out carefully, looked over the results of some of the advertising programs we had already run, and concluded that since our sales had consistently grown, without the use of a salesman of any sort, that possibly it was a reputation for good service which was the major asset.

"We explored this field a little farther, by telephoning some of our customers for whom we had already made major installations. We asked them to tell us how they came to call us in on the heating or air conditioning project in the first place.

Customers Came by 'Word-of-Mouth'

Almost invariably, we found, the answer was that we had been enthusiastically recommended by a business associate, or friend of the customer.

"We felt that this was all we needed to know—and consequently, we have consistently substituted more funds for the service department in place of the usual advertising program."

Nuckols-Cathey now employ 45 people, and operate a string of 10 trucks, six of which are concerned directly with service, and the other four with delivery.

"Actually, they are all service trucks," Nuckols said. "We will put any truck on the road to answer service calls, or to help a customer meet a cooling or heating problem."

The service trucks are complete "rolling refrigeration shops" which were custom-designed by Nuckols-Cathey on the basis of years of experience, and built to order by a local body manufacturer, on a Ford $\frac{3}{4}$ pickup chassis.

The normal open bed has been replaced by a low "box body" containing a series of compartments on each side designed to provide "a place for everything."

On the left side, a broad panel

lets down, suspended by chains, to become a handy work shelf, on which the serviceman may check over the plans or specifications on a cooling system. Located within this compartment are two long, narrow trays, divided into many small sections, for joints, valve parts, handles, nuts and bolts, seals, and similar smaller pieces.

Large tools, and accessories, such as lead pots, pressure tanks, etc., are carried in the larger vertical compartment just ahead of the wheel well.

Trucks Carry Own Service Library

Another bank of compartments is located on the right side of the truck, in this case broken down into a series of larger compartments, used for tools, larger parts, and a "service library" of books, which will cover practically any problem which the refrigeration serviceman may encounter. There is also a vertical locker-type compartment, in which other bulky pieces are carried.

The narrow center bed of the truck, between the two compartments, is large enough to house an air compressor, a refrigerant charging tank (both permanently installed) and to carry large units such as blowers, burners, sheet metal work, etc.

The "basic" stock of tools and parts carried by each of these light-weight rolling units amounts to more than 800 items, and the inventory is constantly there so that it is never necessary to check with a parts clerk before going out on a repair job.

Keep Close Phone Contact

Each serviceman, incidentally, telephones in when on a job so that he may be dispatched if another service emergency crops up in the immediate area.

All men on the job wear colored shirts, with the name of the firm lettered across the back. This neat uniform makes a good impression on the customer, and the idea has been expanded into the stockroom and administrative offices of the firm.

Heating or air conditioning owners are invariably surprised at the rapid response which any emergency call into the firm brings, and both Nuckols and Cathey believe that this impression conveyed along to other possible users of heat or air conditioning, goes a long way toward future sales.

"Naturally, such rolling shop repair vehicles are expensive," Nuckols said. "But we charge off a good deal of this expense as advertising—for in giving constant, customer-pleasing service, that is exactly what each accomplishes."



... that means
expanded profits
for us!



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ALLEN-BRADLEY

QUALITY
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Lots of Glass

Denver Office Building Air Conditioning Fits New Trends In Building Design

DENVER—What is said to be the first completely air conditioned major office building in Denver—the ultra-modern Stearns-Roger Mfg. Co. building at 660 Bannock St.—was to be ready for occupancy the latter part of March, it was announced by the owner, a distributor of air conditioning equipment for Carrier Corp.

The building is the first of several large structures soon to be completed in Denver which are air conditioned by Carrier. The largest of these are the 19-story Denver Club building and the May Co. department store.

ABUNDANCE OF GLASS

The new five-story Stearns-Roger structure exemplifies the newest trend in design—an abundance of glass in an air conditioned building decorated in light harmonizing colors and featuring simplicity of design, it was reported.

Heat resistant glass windows which provide a maximum of natural light practically surround the building at each story. Horizontal and vertical shading devices prevent the direct rays of the sun from entering the building during regular working hours.

The combination of specially treated glass and shading is expected to save more than 10% in air conditioning capacity required. Cooling for the 100,000-sq. ft. building will be provided by a Carrier centrifugal refrigerating machine installed in the basement.

YEAR-ROUND CONTROL

The building will be equipped with a "Conduit Weathermaster" system providing year-round control of temperature and humidity together with ventilation and circulation of filter-cleaned air. It also permits occupants of each office to "dial" their own temperatures.

CONSTRUCTION FEATURES

Stairwells are located at the two extremities of the building. Red brick construction in which the bricks have been laid one directly above the other instead of being staggered, adds to the general appearance. The same column masonry effect, giving the structure the illusion of height, has been carried out over the abutting entrance and lobby.

Architectural work was performed by Stearns-Roger. Engineering was also performed by this company and Carrier in conjunction with Roger Musick.

Grand Rapids Sears Store Installs 25-Unit Air Conditioning System

GRAND RAPIDS, Mich.—A 25-unit air conditioning system is being installed in the Grand Rapids store of Sears Roebuck & Co., revealed Arthur Boot, president of the Chrysler Airtemp dealership handling the installation.

Twenty-five Chrysler Airtemp "packaged" air conditioners will be installed on four floors and in the basement, Boot said. According to P. J. Dalton, Airtemp's Detroit regional sales manager, the Sears installation will be the largest of its type in the state when completed.

The system will circulate 650 g.p.m. of water to carry off store heat. A constant draw upon city water supplies will be avoided. A cooling tower will be installed on the store roof to cool the water and recirculate it through the system. The tower alone weighs 17 tons, Boot said.

Oberc Sells Worthington Packaged Conditioners In Detroit Territory

DETROIT—J. M. Oberc, president of J. M. Oberc, Inc. here, has announced that his firm recently signed up with Worthington Corp. as wholesale distributor on packaged equipment in the Detroit area.

The Oberc firm handles several lines of air conditioning and refrigeration equipment and maintains a complete staff to assist distributors with technical information, installation, and maintenance. Their display room and warehouse are located at 55 Oakman Blvd.

The Worthington lines handled are packaged commercial and residential air conditioning units, in the Michigan counties of Gladwin, Arenac, Bay, Midland, Saginaw, Tuscola, Huron, Sanilac, Shiawassee, Genesee, Lapeer, St. Clair, Oakland, Macomb, Livingston, Wayne, Ingham, and Washtenaw.

Brandt's Gets Charter

COLUMBIA, S. C.—Brandt's, Inc. here has obtained a charter from the Secretary of State to sell, install, and repair air conditioning, heating, and refrigeration equipment and general appliances. Authorized capital stock is \$1,000. H. Lee Scarborough is president.



AIR CONDITIONING



FIRST MODEL IN THE NEW line of Koch packaged commercial air conditioners goes to the crating line as Millard Mayer, chairman of the board, and Chester K. Litman, president of Koch Refrigerators of North Kansas City, are on hand for the event. Unitized air conditioning in 5-hp. and 7½-hp. self-contained models represent a venture into a new field for Koch, which for many years has been a leading producer of commercial refrigerators. This picture was taken on April 1, a day which also marked the 37th anniversary of Mayer with the Koch organization.

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5 MODELS—2 TO 10 TONS

Cools or heats • De-humidifies
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Here is Larkin's answer to the ever-increasing demand for year-round comfort conditioners. When you see it . . . when you compare it . . . when you price it . . . then you will understand why we say it is another triumph for Larkin—manufacturer of air-conditioning equipment for nearly 25 years.

See your wholesaler today for complete information about the all-new Larkin Comfort Conditioner. Write us for the name of the one nearest you—or for descriptive literature.



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FEATURES THAT SELL AND SATISFY

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- Compact cabinet, all-steel, rust-resistant, beautifully finished with baked-on-enamel
- Fiber-glass insulation
- Pressure-type, centrifugal, dynamically balanced, forward curved fan wheels
- Frictionless, self-aligning bearings completely encased in Neoprene
- Resilient base motors on adjustable mounts
- Two-direction, adjustable discharge grille
- Easily removed, throw-away filters
- Heating coils for use with steam or hot water
- Slotted hanger bars
- Easily installed, easy to service
- Backed by the engineering skill and manufacturing reputation of Larkin Coils—one of America's leading makers of commercial and industrial refrigeration and air-conditioning equipment

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TRADEMARK REG.

Borgana

WATER TREATMENT

For
**AIR CONDITIONING and
REFRIGERATION SYSTEMS**

BORGANA Water Treatment:

- Eliminates scale and corrosion
- Reduces slime and algae
- Halts inefficient cooling and excessive power costs
- Avoids danger and inconvenience of acid cleaning
- Non-toxic, chemically neutral, absolutely harmless
- Proved industrial water treatment
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STRONG, CARLISLE & HAMMOND COMPANY
CLEVELAND 13, OHIO

HANDY ONE GALLON CONTAINER

distributors . . . Few territories still available.
Inquiries from distributors invited.



Trade Mark registered U. S. Patent Office: Est. 1926.

F. M. COCKRELL, Founder

The Conscience of the Industry

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APRIL 19, 1954

Give, Tell, Show, Sell--- New Technique of Floor Selling Is Making Money for Dealers

SALES-DIRECTING EXECUTIVES and field men, who have been calling *in person* on refrigerator-freezer-room cooler dealers all around the nation, unite in reporting three disturbing factors which exist in *every* trading area nowadays:

(1) Most dealers don't seem to be trying very hard to move their merchandise. Floor models are "rusting" because dealers are resting, and on accounta salesmen don't demonstrate.

(2) Rarely do traveling sales executives find a dealer with a staff of "outside salesmen" who ring doorbells and put "One Foot in the Door." However, those few dealers who do promote outside-the-store sales are registering phenomenal business. Several of them are profit-netting \$50,000 a year and upwards!

(3) A new technique of store-floor salesmanship is arising, and it is paying off beautifully. Of this more in a moment.

Generally it is agreed that "outside" salesmanship (doorbell ringing) is practically a Lost Art. Here is the reason: It is difficult to recruit effective salesmen who are willing to work on straight commissions, and "look a prospect in the face." (Somehow, few seem to have the "guts").

Most young fellows prefer the relative safety of a salaried job. And their wives are even more insistent on the presumed security of a standard wage, it would seem.

During the 1930's, when employment reached an all-time peak, thousands of men who were desperate for a job of any kind did join "outside" crews of specialty salesmen. With their help, the electric

They'll Do It Every Time Jimmy Hatlo



refrigerator rapidly became a standard household necessity. Their willingness to ring doorbells, to put "One Foot in the Door," helped specialty salesmanship make our industry what it is today.

Is there a chance to recapture that situation in 1954? Best informed answer: No, dammit—at least not on a large scale.

Exceptions can be found, of course. Although unemployment currently is insignificant compared to the Roosevelt Depression years, in a few areas it has become stridently serious. Enterprising dealers in those market centers *should* be able to find quite a few hungry men who *will* undertake the supposedly insecure job of selling on straight commission with no "guarantee" or drawing account. (Often, to their surprise, such salesmen make much more money than they ever did before on presumably "safe" salary-or-wage employment).

Elsewhere, salesmen apparently hate to leave the safe haven of a store. In recent years "they had it good." So good, in fact, that their oral, manual, and visual demonstrations of *what the product can do for a purchaser* in too many cases have become perfunctory, indifferent, and even non-existent.

To remedy this sad situation, prescient dealers are utilizing a new gimmick—borrowed from the Fuller Brush Man. Here's how it works, step by step:

(A) Two or three previously "rusty" refrigerators are plugged into an electrical outlet, and stocked with canned beer and bottled "soft goods."

(B) As soon as a prospect enters this well-equipped dealership, a salesman asks her if she'd like a refreshing drink. Naturally, she would. So he leads her over to an attractive new refrigerator, *opens the door* (thus exposing her to its intriguing interior), uncaps a bottle, and pours out to her the refreshment of her choice.

(C) Whilst she cools her tonsils with that free beverage, the salesman has at least five minutes into which he can extoll the glories of the 1954 model at which she is peering. She can't leave until she finishes her drink. Because he would be embarrassed by running out of succulent words, the salesman perforce must learn a "canned sales talk" by heart.

(D) To prevent floor salesmen from wandering away from a prospect while she's sipping her coke, smart dealers offer daily bonuses for completed demonstrations. To wit: Each salesman is equipped with adhesive tags bearing his initials. Whereupon he caps empty bottles with his initialed TAG *after* the prospect hands it back to him. Thus he accumulates "points" for a payoff afterward.

Similar systems can be arranged for demonstrating other major appliances. Take an electric range: A prospect can be offered a fresh cup of coffee, brewed from scratch on a captively demonstrated electric "stove." Until the coffee boil-point is reached the housewife must wait, look, and listen while the salesman gives her the "pitch."

Likewise, automatic garment-washing-and-drying devices afford magnificent opportunities for salesroom demonstrations.

An Alabama dealer, we were told straightfacedly by a regional manager, sold out his entire laundry equipment inventory in three days by advertising:

"LADIES: Leave your clothing in my store and enjoy a carefree afternoon."

If you, Mr. Subscriber, aren't in a trading area where the unemployed are so broke that they are ready to take on doorbell-ringing specialty selling jobs, this new Give-Tell-Show-Sell formula may work wonders for *your* business enterprise.

All you have to do is provide a GIMMICK (like a free bottle of coke, or cup of coffee). Your floor salesman will *have* to do the rest, or look like an utter dummy.

More in '54

SERVICE FEATURES

Do you promise your customers "GOOD SERVICE"?

Of course you do. Because, frankly, isn't that what every refrigeration customer is looking for?

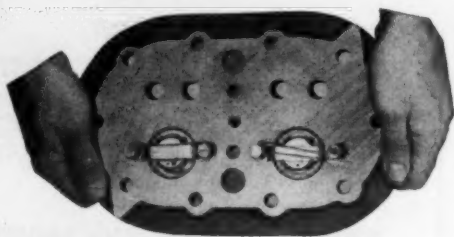
And when you handle the big Brunner line — your customers are sure to get all the "good service" they expect! In the first place, Brunner has such a broad selection of models and sizes, you can choose the refrigeration equipment best fitted for *any* job. And, of course, every Brunner unit is built for long, trouble-free operation — with the famous Brunner slow-speed compressor that does more work with less wear.

MOST IMPORTANT TO YOU . . .

When service is necessary, it's a simple matter to work on Brunner equipment. You'll find every advantage for fast, easy servicing on-the-job has been carefully engineered into Brunner units — with standard parts readily available from your nearby Brunner distributor.

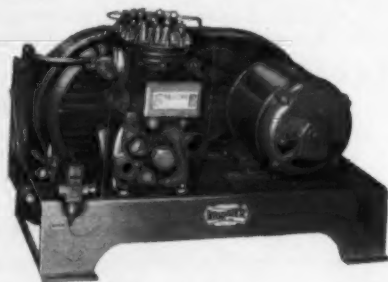
Better see your Brunner distributor soon . . . he's in business to give you "good service," too!

BRUNNER MANUFACTURING CO., Dept. A434, UTICA, N.Y.
The Brunner Co., Gainesville, Ga.
In Canada: Brunner Corp. (Canada) Limited, Toronto, Ontario



REPLACEABLE VALVE PLATES

With all valves in one plate assembly, complete replacement or repairs can be made quickly and easily on any Brunner Compressor — just one of the many time and labor-saving features found on all Brunner equipment!



BRUNNER *means*
SINCE 1906 *More in '54*



BRUNNER REFRIGERATION IS ADVERTISED IN THE SATURDAY EVENING POST



specialty SELLING METHODS

Dealer Eliminates Profit Leaks

Salesman Made Responsible for Resale of Trade-Ins Watches Allowances Carefully

SPRINGFIELD, Mass.—Requiring salesmen to be responsible for the resale of the trade-ins they accept has eliminated most of the nuisances of this phase of appliance retailing at Carlisle's here.

Operating 11 stores in western Massachusetts and northern Connecticut, the company sells upwards of a million dollars worth of appliances a year.

As can be imagined, trade-ins have been a major problem. They slowed up new appliance sales and caused unsuspected "profit leaks" until George Clark, veteran appliance manager, dug into the situation and came up with the present smoothly-operating system.

"Trade-ins are always going to be with us," Clark points out, "and they must be accepted as a necessary evil. The dealer, however, can exercise common sense to alleviate the annoyance."

"Before the war, we were able to get a used refrigerator, range, etc. completely refinished for \$8 per unit. Now, due to labor costs, that is impossible, and we have been forced to sell on an 'as is' basis. Therefore, we have had to plan every step carefully."

First, Clark sees to it that no trade-in allowance is so excessive that the concern will not show a 32% markup on the sale. Most allowances are limited to approximately 10% of the new appliance price, with the exception of those which sell for \$300 or more, when Carlisle's will work on a 30% basis.

With this information at hand, salesmen are allowed to set the profit margin on each transaction, and likewise to set up the trade-in allowance proportionately.

The problem of trade-ins is discussed every Thursday morning, when all appliance sales managers in all the 11 stores hold a sales meeting.

"We beat the drum for plenty of trade-ins, but on a sound, reasonable basis," Clark pointed out. "Perhaps we will lose some sales through keeping a tight control on the amount of allowance given, but the freedom from over-large allowances and from the necessity of accepting junk makes it well worth while."

The second major point in the Carlisle plan has been to require that every salesman follow through on every trade-in. This rule prevents salesmen from "going overboard" on trade-in allowances.

Every salesman is required to account for every trade-in which has been received on one of his sales, and he must make a daily report on it until it is sold. Thus, salesmen will expend more effort to sell the used appliances and at an acceptable profit.

Clark controls all of his sales closely by means of a huge card file, maintained in his office in the main downtown building. Part of the card file shows trade-ins on hand, the salesmen who took them

in, the price, the allowance, selling price, etc.

A close, constant check is kept on these to see that the trade-in moves out swiftly.

The trade-in showroom on the fourth floor of the downtown store is a 40 by 18-ft. room that can display 50 or 60 used major appliances. Stores in smaller towns utilize stockroom space or simply "set them out on the sidewalk."

Self-Quiz Sales Incentive Contest To Be Repeated, Salesmen Trade Selling Ideas So All Will Benefit

CHICAGO—Because of the success of a special sales incentive campaign for dealer and distributor salesmen, using a self-quiz technique introduced last year for the first time in the appliance industry, Hotpoint Co. will repeat the contest during 1954.

In making the announcement, D. D. Thompson, sales training manager, said that there will be an added inducement of more than \$6,000 in prize money for the best jobs done by dealer and distributor salesmen.

The new technique is based on the self-quiz techniques developed by psychologists several years ago. Consumer magazines and books have been using them too in recent years.

A booklet which embraces this technique has been made avail-

able to dealers through their distributors. It covers questions concerning all Hotpoint appliances, which the salesman fills out. These questions are in the form of assignments, typical prospect objections and suggestions and demonstrations to illustrate a point.

Since no two prospects are exactly alike in their desire to purchase an appliance, the self-quiz technique teaches the retail appliance salesman to think on his feet and meet the consumer head on with a good, sound sales story. Each question challenges his creative thinking ability plus his knowledge of the products and their features.

Thompson said that the purpose of the added inducement in 1954 of \$6,000 prize money was two-fold: to obtain wider distribution and

use of the self-training kit; and to gather ideas from the field on best methods of selling appliances, in order to incorporate them into the 1955 sales manual.

"A dealer in New York may have just the technique for selling air conditioners that a man in the south is looking for, or perhaps a west coast salesman knows how to move electric dishwashers and wants to pass it on to a salesman in Chicago," Thompson said.

"All of these ideas will be gathered from the four parts of the United States, tabulated and incorporated into the 1955 sales manual so that all Hotpoint retail salesmen will benefit from it."

Ondrusek Heads O'Donnell Branch

BINGHAMTON, N. Y.—Robert T. Ondrusek has been appointed manager of the Southern Tier branch of O'Donnell Distributors, Inc., Syracuse appliance wholesaler. The O'Donnell branch was opened last September.

FEDDERS MILLIONAIRE'S VACATION CONTEST BANDWAGON HITS YOUR TOWN APRIL 19TH

YOU a Fedders dealer? Get set for a feast... FREE and fabulous! Fedders is handing you, on a solid gold platter, 1954's most exciting consumer promotion—the Millionaire's Vacation Contest. It's easy, it's fun. There are lots of chances to win rich, glamorous two-week vacations for two in Europe and Bermuda... lots of chances to win Fedders Room Air Conditioners.

We're distributing millions of entry blanks right now. You may need more. This contest is going to pull absolutely, and the only place to get an entry blank is your store.

Fedders Millionaire's Vacation Contest breaks in a big

colorful LIFE page April 19th. A week later, a big follow-up newspaper ad breaks in your town... with your name on it. Is that all? NO!

On May 3rd we hit 'em again with a big LIFE ad. And the next week, we hit 'em again in your town with a newspaper ad, with your name on it.

If you haven't got all the details and the spectacular Millionaire's Vacation display kit... call your distributor right now... or write Bill Chase, Advertising Manager, Fedders-Quigan Corp. Dept. AC-3, 57 Tonawanda St., Buffalo 7, New York.

BOB CASSATT Sales Manager

BILL CHASE Ad Manager

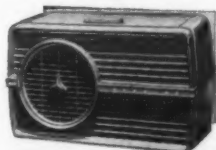
FEDDERS
WORLD'S LARGEST
MANUFACTURER OF
ROOM AIR CONDITIONERS

CALL YOUR DISTRIBUTOR TODAY!

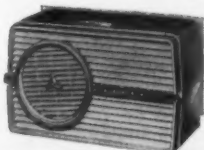
NOT JUST ONE BUT 2-TWO-2 SMASH CONTEST ADS IN LIFE

NOT JUST ONE BUT 2-TWO-2 BIG CONTEST ADS IN YOUR TOWN ... CARRYING YOUR NAME

BE SURE you've got a FULL STOCK OF FEDDERS FULL LINE



1/2 ton* Capacity Model 44



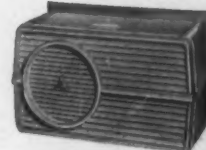
1/2 ton* Deluxe Model 46



1 ton* and 1 1/2 ton* Consoles



1/2 ton* Deluxe Model 49



1 ton* Deluxe Model 411

*All Fedders Units are full rated

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How Individuals Benefit

People Living In Air Conditioned Homes Fare Better Physically, Financially, and Mentally, Survey Finds

EVANSVILLE, Ind.—A nationwide survey recently completed by the American Gas Association indicates that people who live in air conditioned homes are better off physically, financially—and even mentally—than those who don't.

Survey results were based on personal interviews with 782 adults and 390 children residing in 325 houses equipped with Servel "All-Year" gas air conditioning. The study was conducted by the A.G.A. Home Service Committee, with actual field interviews handled by the home service departments of nine cooperating utility companies.

General Health Improves

More than two-thirds of the families in the survey reported improvement in the general health of all members of the household. In 224 homes, the family rested better at night, in 50 cases there were fewer colds, and 68 reported relief from hay fever or pollen allergies.

A large percentage credited improved atmospheric conditions in the home with having perked up appetites of family members, and the health and comfort of infants were benefited. Only 12 individuals claimed adverse effects.

Interviewees were asked if air conditioning had helped them save medical expenses. In 47 homes the answer was "yes," in 180 "no," and in 98 others no opinion was given. Among those who answered affirmatively, savings were judged to range from \$25 to more than \$200 a year.

Homes Require Less Work

"Is there any difference in the household cleaning work required in your 'All-Year' air conditioned home?" the families were asked. Two hundred and seventy housewives agreed that important labor-saving advantages resulted from Servel air conditioning. Among the benefits mentioned were:

Less time needed for dusting furniture, 244; less cleaning of walls and woodwork, 193; less use of domestic help, 38; less frequent cleaning of drapes and curtains, slip covers, rugs, and upholstery, 190; and less redecorating required, 85.

Saves \$30 to \$550

Annually In Cleaning Bills

Respondents praised "All-Year" gas air conditioning as "making it easier to keep help, preventing

mildew and other conditions induced by moisture condensation, and discouraging breeding of moths and other pests." Savings in cleaning expenses, ranging from \$30 to \$550 a year, were claimed by householders.

As to the effects of air conditioning on family eating habits, 36 homes expressed no opinion and 129 indicated there had been no noticeable change.

On the other hand, 160 indicated that their families were now eating more meals at home, fewer felt impelled to visit air conditioned restaurants because their own homes now had the added comfort, and about a third of those interviewed said they had saved from \$50 to \$240 in a single summer by reducing the number of meals eaten outside the home.

Recreation Habits Change

One of the most marked effects of living in an air conditioned home was shown to be in changed recreation activities. Changes of a major sort were noted in 232 of the 325 homes.

Ninety-five families attended fewer air conditioned movies, 98 said there was less need for week-

Residential Air Conditioning

ends in the country, 200 spent more evenings at home instead of going out, and 66 made fewer trips to parks and swimming pools.

Home entertaining had increased perceptibly in 45 instances, 126 family heads reported decreases of from \$5 a week to \$200 for the summer season in outside recreation expenses, while 59 said there were substantial savings in vacation expenses.

90% Find Air Conditioning Essential

The survey also showed that more than 90% of those interviewed consider the air conditioner essential or at least desirable in the home, and 82% expressed the belief that air conditioning substantially increases the value of their homes.

Other benefits from having an "All-Year" gas air conditioned home, in the order of frequency mentioned by respondents, were the following:

Everybody Benefits—Even the Dog

Outside noise eliminated since windows are kept closed; plants grow better; the family is more compatible; no stale odors in the house; social advantages; furs don't need special storage facilities during the summer; and "even the dog likes it."

The nine cooperating companies were the Arkansas-Louisiana Gas Co., Little Rock; Central Electric

& Gas Co., Lincoln, Neb.; Laclede Gas Co., St. Louis; Lone Star Gas Co., Dallas; Ohio Fuel Gas Co., Columbus; Southern California Gas Co., Los Angeles; Pacific Gas & Electric Co., San Francisco; United Gas Corp., Gulfport, Miss.; and Washington Gas Light Co., Washington, D. C.

Results of the survey will be used in developing educational, advertising, and promotional programs to acquaint the public with the advantages of "All-Year" gas air conditioning for the home.

Airtemp Preparing Display For Indoor Comfort Show In Philadelphia May 16-20

DAYTON—E. A. Nash, merchandising manager of Chrysler's Airtemp Div., has announced that "Air Conditioning—A New Dimension of Modern Living" will be the theme of the display Airtemp is preparing for the National Indoor Comfort Exposition, May 16-20 at Philadelphia.

Nash said Airtemp would exhibit operating models of both air-cooled and water-cooled matching year-round air conditioners. The company's recently-introduced case-mount window room air conditioner also will be featured in the display.

Site of the May exposition, conducted by the country's leading manufacturers of oil heating equipment, will be the Commercial Museum, in the Quaker City.

More Sales, Added Profits with the bigger-than-ever Mueller Climatrol Cooling Line



New!

Type 224-906 Companion Units — For all-season air conditioning. The Type 224 heating unit is oil-fired (convertible to gas) — with 80,000, 100,000, 125,000, and 150,000 Btu input. The Type 906 cooling unit is available in 2-hp and 3-hp sizes — and can be installed with any winter air conditioner. Has own blower. Each size of the heating unit may be interchanged with either of the cooling models, for real flexibility.

New Products make Mueller Climatrol the most complete line — broaden your market — provide you with more sales opportunities. **New Styling** by world-famous industrial designer, Brooks Stevens, adds eye-appeal that gives your prospects another reason to buy. **New, Smooth Finish** in a new, handsome color — Mountain Spring Green. More pleasing appearance, easier to sell.

Now, Mueller Climatrol, the Big Name in Heating and Cooling gives you everything you need to keep out in front — for increased volume and profits.

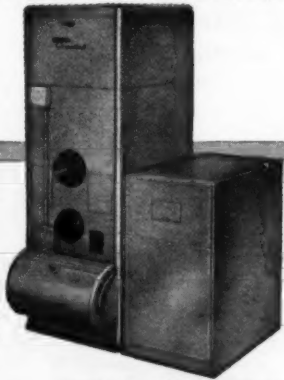
- A complete line to meet most any requirement — residential and commercial.
- Quality products built by specialists in home comfort!
- A well-known name with 97 years of leadership behind it!
- A consistent program of powerful national advertising!
- Hard-hitting dealer helps!

Write to see how you can put all this to work making money for you.

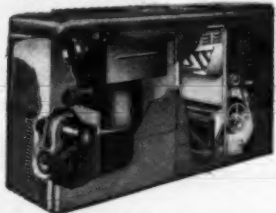


Mueller Climatrol

2036 W. W. Oklahoma Ave. • Milwaukee 15, Wis.



Type 900 Condensing Unit and Coil — A compact unit of semi-harmonic design that can be installed in the duct system of any forced-air heating plant having sufficient blower capacity. 3, 5, and 7 1/2 hp.



Type 916 Summer Air Conditioner — For use with Types 116 and 216 winter air conditioners. By-pass damper arrangement provides utmost efficiency in any climate. 2 and 3 hp. Also available is the Type 901 Summer Air Conditioner for use with Type 105, gas-fired, and Type 202, oil-fired, winter air conditioners. 3, 5, and 7 1/2 hp.

Type 115-905 Counterflow Summer and Winter Air Conditioner — Heating and cooling for perimeter systems, with horizontal or attic furnaces, and other small-space applications. Furnace has adequate blower for both heating and cooling. Cooling unit contains complete enclosed refrigeration system. 2 and 3 hp.



Type 903 Self-Contained Cooling Unit — Can be installed with any new winter air conditioning system — or added to existing systems. Contains complete enclosed refrigeration system in one compact package. 2, 3, and 5 hp.

Type 904 Self-Contained Cooling Unit — For installation in stores, restaurants, etc. — or with duct systems in homes with radiator or radiant heat. Complete refrigeration system with blower and filters. Can be installed with steam coil for heating. Available with discharge grille, or can be used with duct-work. 2, 3, 5, and 7 1/2 hp.



Type 910 Recessed Summer Conditioner — For cooling new and old homes, motels, apartments, office buildings, and homes with radiator heat. Installs under window between two standard studs. Air-cooled, requires no plumbing connections. 1/4-hp and 1-hp sizes.

Why Do People Buy AIR CONDITIONING?

There are eight reasons why people buy Air Conditioning! Every dealer, every salesman, and every man who makes his living in air conditioning should know these reasons why people buy. AIR CONDITIONING & REFRIGERATION NEWS gives the answer to this question—and many more in its new 115-page book . . .

AIR CONDITIONING And Its Application

Here is one of the most valuable collections of reprints from AIR CONDITIONING & REFRIGERATION NEWS. Gathered together under one cover are articles on Growth and Future of Air Conditioning, What Salesmen Need To Know, Automobile Air Conditioning, How To Sales Promote Air Conditioning, Who Are the Buyers, What Will People Buy . . . these are only a few of the 103 vital subjects among the most important articles on air conditioning published in AIR CONDITIONING & REFRIGERATION NEWS in the past two years.

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4-19-54

Rush me my copy (copies) of AIR CONDITIONING And Its Application. I am enclosing my check or money order for \$

Name
Address
City Zone State



PERMANENT HOUSING is ready to take Perfection room air conditioner. Rental units are slipped into place without further installation.

'Weather Cabinet,' Utility Cart Help Dealers Sell Room Coolers for Rental

CLEVELAND—To help its dealers sell room air conditioners to apartment house owners, hospitals, hotels, and office buildings for rental to tenants or guests, the Perfection Stove Co. here is manufacturing a "weather cabinet" to fit its room coolers, and a specially designed utility cart to move the coolers from one room to another easily.

The weather cabinet is a housing into which will fit any of Perfection's coolers— $\frac{1}{2}$, $\frac{3}{4}$, or 1-ton models. This cabinet is installed permanently in the window of each room or apartment to be cooled. Then, when requested or desired, the room cooler can be brought to the window on the utility cart and

slid into the cabinet like a bureau drawer. The cart can elevate or lower the cooler so that it will slide easily into the weather cabinet.

Perfection officials said that they do not merchandise the weather cabinets separately, but sell a specified number of cabinets with a smaller number of cooling units. The carts are sold to dealers for \$49.70 each.

Perfection does not have a rental plan set up. This is up to the individual dealer. One official, however, said that a feasible plan would be to let the hotel or hospital make its initial investment in room air conditioners as they do with radios and TV sets. Then they can put the charges for comfort on



UTILITY CART makes it easy to move units from room to room. Device can elevate or lower cooler to exact height of housing so that it can slide into weather cabinet.

the bill of the guest or patient using the coolers and amortize their expenditure that way.

Perfection further suggested that in private homes, weather cabinets may be installed in various rooms and a single air conditioning unit transported to the room which most needs cooling at any given time.

The company said that its coolers are so designed that they may be installed inside the window line so as not to interfere with building maintenance operations and to permit the window to be closed and locked behind the unit.



AIR CONDITIONERS

F. H. Russell Directs Sales Training for Philco Corp.

PHILADELPHIA — Promotion of Frank H. Russell to director of sales training, Philco Corp., was announced recently by Raymond B. George, vice president in charge of merchandising.

In his new capacity, Russell will be responsible for the creation of sales training material to be used by approximately 25,000 retailers and retail salesmen who make up the Philco dealer organization. He succeeds Edward M. Bland, recently named advertising manager for the Philco Television Div.

Russell joined Philco in 1943 with the Training and Installation Div. as field engineer assigned to the Naval Bureau of Aviation. Following service with the Navy, he returned to Philco and was assigned to the Technical Representative Div. and was stationed in Tokyo. He served as an electronics engineer with the first two post-war atom bomb test forces at Eniwetok.

Russell returned to Philco headquarters in Philadelphia in 1948

with the Service Div. where he became promotion manager prior to his appointment to the sales training staff.

Cory '53 Sales Set Record, Earnings, Dividends Double

CHICAGO—J. W. Alsdorf, president of Cory Corp. recently reported that 1953 sales were the largest in the company's history for any year and totaled \$16,214,739 as compared to \$9,951,407 for 1952. This represented an increase in sales of \$6,263,332, or 63%.

Income before provision for Federal and Canadian income taxes for the year 1953 amounted to \$1,081,776 as compared to 1952 earnings of \$504,680, or an increase in earnings of 114%.

The net income after provision for Federal and Canadian income taxes for 1953 amounted to \$521,776, or 81 cents per share, compared to \$243,680, or 38 cents per share for 1952.

In view of the larger earnings, the board of directors doubled the declared dividends for 1953 to 20 cents a share.

Vornado[®]
wanted a superior filter

AMER-glas[®]
had the answer..



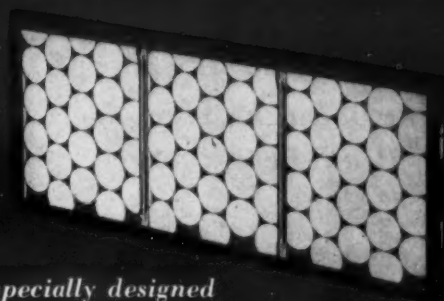
LET AAF ENGINEERS WORK FOR YOU
For expert help with your filter problems, call on the leader in filters for air conditioning units. Get the benefit of AAF's more than 30 years' experience devoted, exclusively to all types of air filters.

SEND FOR FREE AMER-glas TEST FILTER!

American Air Filter Co., Inc.
109 Central Ave., Louisville 8, Ky.

Send us FREE test filter and information on AMER-glas filters for air conditioning units.

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Evaporative Cooling—3

Engineering Approach Analyzes Advantages, Limitations for Air Force Conference

Editor's Note: This is the third and final instalment of the paper on evaporative cooling which was one of a series covering various phases of air conditioning given at the Refrigeration & Air Conditioning Engineers' Conference staged by Headquarters, United States Air Force, at the Pentagon in Washington, D. C. recently.

By S. F. Duncan, Director of Research and Development, Farr Co.*

Cooling Load and Cooler Sizing

Basically, the principles of cooler sizing and cooler load determination are the same for evaporative cooling as for any other equipment designed to control space temperature. Because of this, many details of methods will not be discussed under this topic but the general steps will be outlined.

Since space temperature depends to a great extent on outside air temperature and humidity, the first step should be the selection of outside dry bulb and wet-bulb design temperatures. Various sources of this information do not always agree though they appear to be on the same basis.

Recommended practice of the

*Presented before the Refrigeration & Air Conditioning Engineers' Conference of Headquarters, United States Air Force, held at Washington, D. C.

Air Conditioning and Refrigeration Machinery Association (ACRMA) is usually based on temperatures exceeded not more than 5% of the time during June, July, August, and September, the accepted cooling season. The ASHVE Guide gives a 2½% time temperature and a "generally used" temperature. The isothermal maps of Figs. 3 and 4 provide still another source of information.

Comparing the recommendations of these various sources shows that variations exist up to about 5° F. in some instances. Lacking other information, data from the sources cited may be used.

As was mentioned previously, knowledge of the range and frequency of existence of simultaneous w.b. and d.b. readings for the area in which the cooled space is to be located would be helpful. The Marley Engineering Manual previously mentioned gives a table

of percent occurrence of w.b. and d.b. temperatures that provides some additional information.

Data for 2 Cities

The cities of Williams, California and Phoenix, Arizona, have been chosen to illustrate the possible use of this data. The percentages given are the per cent time a particular temperature will be equalled or exceeded during the cooling season. Dry-bulb temperatures are based on a 12-hour period each day, 12 noon to 12 midnight, or 11 a.m. to 11 p.m. as the case may be. Wet-bulb data covers the 24-hour day each day.

The data for Phoenix is shown in Fig. 8. Note that the implied wet-bulb depression remains rather constant up to the 35% line and that the dry-bulb temperature is above 100° F. about 36% of the

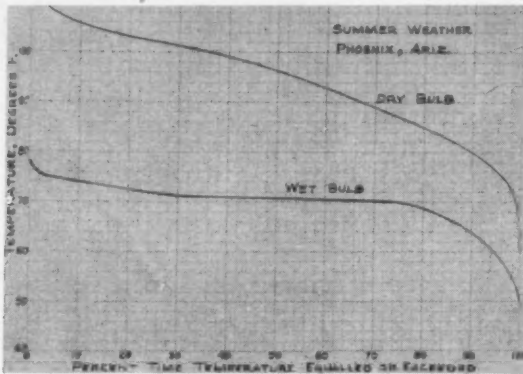


FIG. 8 shows summer weather data for Phoenix, Ariz.

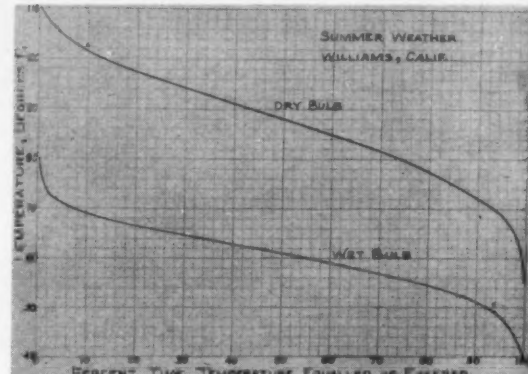


FIG. 9 shows summer weather data for Williams, Calif.

TABLE II

	Williams, Calif. F°	Phoenix, Ariz. F°
Average d.b.—Figs. 8 and 9.....	86.6	93.9
Design d.b.—ASHVE Guide 1953	103	105
—ACRMA—5%	110	110
—Chart, Fig. 4	104	110
—Figs. 8 and 9 at 5%	105	108
Average w.b.—Figs. 8 and 9	60.0	66.5
—ASHVE Guide 1953	76	76
—ACRMA—5%	76	75
—Chart, Fig. 3	71	75
—Figs. 8 and 9 at 5%	71	75

time. At 5% the d.b. is read at 108° F. and w.b. at 75° F. Because of the sustained high d.b., a cooler installation would be expected to run at maximum effort a large percentage of the time.

The summer weather in Williams is shown on Fig. 9. The general sloping nature of the lines indicates that the temperatures go up and down most of the time and there is no sustained high temperature such as is indicated for Phoenix. The d.b. is above 100° F. only 13% of the time in Williams compared to 36% in Phoenix.

Design D. B. Temperature Should Be High In Phoenix

From the standpoint of Fig. 8 and 9 the design d.b. temperature in Phoenix should be chosen on the high side while that for Williams could be shaded a little low if deemed tolerable to the job. Up to 50% time, the implied wet-bulb depression for both cities is close to constant at 30° F.

The data for Figs. 8 and 9 has no reference to the co-existence of the temperatures existing for the same per cent time. Hence above, the implied wet-bulb depression was named as being the temperature difference between the two curves on any ordinate.

Tabulating the data for these two cities from several sources gives the figures for Table II.

Examining Table II, it is seen that design temperatures for Williams are pretty well in agreement at say 104° F. d.b. and 71° F. w.b. Because of the shape of the curves in Fig. 9, design temperatures could well be taken as low as 102° F. d.b. and 70° F. w.b. corresponding to the 9% line. Note the difference between average and design temperatures in each column.

For Phoenix, Table II shows a

variation of 5° F. in the various recommended d.b. temperatures. From the longer sustained hot weather, a higher rather than a lower value should be used and it probably should not be lower than 108° F. d.b. The corresponding w.b. temperature should be 76° F. to assure adequate cooling air for long hot spells.

Same Analysis Should Be Used for Other Cities

Choices of design temperature for other cities should follow the above method of analysis and consideration.

The inside design temperature is a balance between what is the most desirable and what can be obtained with the equipment. Some specifications simply call for a 15° F. difference indoors to outdoors. The method of determining the cool air temperature is shown in Figs. 6 and 7. The relation between the space temperature, the cool air temperature, the cooling load, and the air required has already been demonstrated.

The assumption of 80% cooler efficiency has been made for convenience but the designer should not overlook the possibility of using an efficiency more closely tied to his immediate conditions and specific cooler performance. It is inherent in evaporative coolers that the efficiency will vary with air flow—the higher the air flow, the lower the efficiency.

To measure cooler efficiency requires rather elaborate laboratory facilities to determine full performance curves. The test air must usually be heated and humidified to varying degrees to obtain the range of inlet conditions necessary. Air flow must be carefully measured and average temperatures accurately determined. Where reliability is required, the method of

(Concluded on next page)

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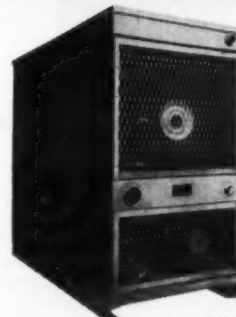
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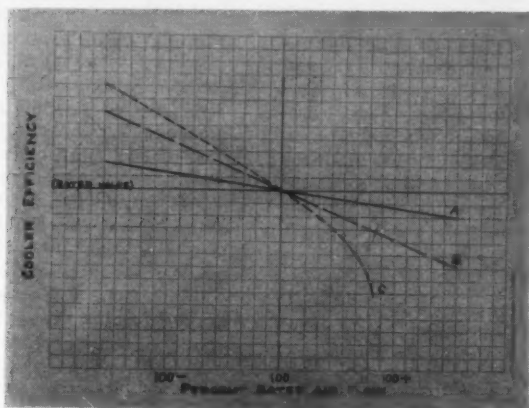


FIG. 10—Probable types of efficiency curves for evaporative coolers under various conditions.

Efficiency of Evaporative Cooling--

(Continued from preceding page) able data is available from the manufacturer, it can be used to determine the best efficiency for the problem at hand.

Efficiency Decreases as Air Flow Increases

The fact that the efficiency of practically all types decreases as air flow increases is a strong argument against operating coolers over their rating under the impression that by so doing the cooling capacity is increased. Actually running over rated air flow may decrease cooling capacity.

Assuming a straight line variation in efficiency over say a $\pm 10\%$ variation in air flow around rated capacity, it can be shown that for a given set of conditions (design w.b. and d.b., space temperature, and cooling load), the number of coolers, N , is:

$$N = \frac{K}{aq - bq^2}$$

where K , a , and b are constants derived from the design conditions and cooler characteristics, and q is the individual cooler air flow in thousands of c.f.m.

The presence of q^2 in this equation takes it out of the straight line class and indicates that some optimum value of q exists to make N a minimum. Unfortunately, the values of a and b can locate the value of q outside of the $\pm 10\%$ flow range over which the efficiency can be approximated by a straight line. Where adequate performance data is available, a couple of trial computations will quickly determine the trend of the N , q relation for a particular case.

To complete the discussion of cooler efficiency, Fig. 10 illustrates probable types of efficiency curves. Curves A and B are normal for most new or well maintained coolers. Curve C is for a cooler with inadequate reserve water holding

capacity. The dive in the curve is caused by the drying out of the water on the evaporative surface at the higher air flows. Curves A and B can also take a dive toward lower efficiency for the same reason that C does, but it will happen above the operating range.

Poor Maintenance Causes Variations In Efficiency

Poor maintenance can cause a cooler efficiency curve to move about, but it is most unusual to have inattention improve the operating characteristics of any device.

The curves of Fig. 10 may be criticized on the basis that once installed, the air flow is constant but the actuality is that the most nearly constant factor is the blower speed. Accumulations of dust, salt deposits, gaps in the evaporative media due to vibration, impingement of water sprays or decay all change the effective resistance of the cooler and hence vary the air flow. Original cooler design plus appropriate maintenance can hold air flow quite constant.

The cooling load has been used in the examples for Figs. 6 and 7. The determination of the cooling load is as important when designing for evaporative cooling as it is when considering mechanical refrigeration. Too often evaporative cooling has been installed with capacity to simply provide a two or three-minute air change.

The number of air changes supposedly obtained was computed using a unit rating based on free blower discharge. The addition of a duct system increased the pressure required at the unit outlet and cut down the air flow due to fan characteristics. The result of such design practice was generally an unsatisfactory cooling job. Since a reasonable amount of performance data is now available, the cooling load should be com-

puted on the basis of the structure, infiltration, sun effects, etc., the same as for mechanical refrigeration cooling.

The only important difference is that since 100% fresh air is used with evaporative cooling, the latent heat load can be neglected. Details of cooling load computation are readily available and will not be covered here.

Suggested Procedure

To review and also to arrange the several recommendations made and inferred heretofore, the following procedure is suggested:

1—Select design outdoor dry bulb and wet-bulb temperatures.

2—Select a preliminary cooler efficiency from manufacturers data.

3—Run preliminary calculations for several selected mixture or space temperatures to determine c.f.m. cool air required per B.t.u. cooling load and select the most feasible value.

4—Compute cooling load at the selected design dry bulb and space temperature.

5—Compute total air requirements to satisfy cooling load using results of preliminary design in (3).

6—Compare total c.f.m. from (4) with winter heating requirements for possible duct system arrangements and/or economies.

7—Compute required number of coolers at rated air flow.

8—Re-examine choice of cooler



air flow and efficiency for possible economies.

9—Check design against another system (evaporative plus pre-cooling, etc.).

10—Check maintenance cost of coolers chosen.

11—Finalize design on comparison of first cost of the whole installation, and maintenance costs as compared to the tangible and intangible value of the comfort produced.

Installation and Maintenance

Evaporative coolers, because of their relative simplicity, have too often been given the "put it anywhere" treatment. To discuss installation and maintenance some description of available types is necessary. The order of listing of types is not significant except as it may reflect price.

1—Excelsior or spunglass pads with water dripped over them.

2—Excelsior or spunglass pads wet by atomizer, spray, or flinger.

3—Spray chambers followed closely by drift eliminators that contribute to the evaporative surface.

4—Regular configuration metal

evaporating surfaces wet by spray or immersion.

With all types listed above, the installation should take account of dust and dirt deposits. Air intakes should not point into the prevailing wind. Additional protection should be afforded by installing adequate filters.

Observation of deposits in coolers operating on unfiltered air has shown that salt deposits are frequently started around dirt particles. With areas of the cooler being nearly dry, salt concentration is high and impinging dust or dirt particles seem to act as nuclei for the initiation of salt deposits. Filters have the added advantage of helping keep the cooled space clean and reduce cooler cleaning maintenance.

Since many installations are put on roofs, the air intake should be designed to get ambient air, not the extra hot air close to a black roof. In some areas special precautions need to be exercised to keep the coolers clean during the "cotton wood" season. In others, special precaution must be exercised to keep crickets or cicadas or

(Concluded on next page)

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Efficiency of Evaporative Cooling--

(Concluded from preceding page)

other pest insects out of the wet areas where they can decay and cause objectionable odors.

Guard Outdoor Installations Against Heat

Roof and other outdoor installations should be guarded against excessive heat transfer through the cooler housing and exposed duct work. Aluminum or other reflective paint on the outside helps, but the best protection is suitable insulation with glass wool, celotex or similar.

Indoor installations can still suffer from dirt and intakes should be filtered.

In designing ductwork, the possibility of exhausting the air through attic spaces should be considered. The exhaust air, being cooler than design dry-bulb temperature, will reduce the cooling load appreciably.

Since evaporative cooling carries the impression of high humidity to many people, attic exhaust might be looked at askance as a source of condensation, but an analysis of the situation shows that the danger is non-existent. Reference to Fig. 6 and 7 shows that 70% relative humidity is as high as the examples go on moisture in the attic air. This is not an unusual humidity and would not be considered dangerous if it were out-

door air.

Considering, in addition, that evaporative cooling is applied in the hot drier climates where extreme diurnal temperature variation is not encountered, further minimizes the possibility of condensation. As further evidence, several hundred installations have been operating with attic discharge for up to 10 years without any sign of condensation.

Access Must Be Provided

Since no cooler is long serviceable without some attention, reasonably easy access must be provided to promote proper maintenance.

Since most evaporative coolers are equipped with a drain connection to "blow down" water reservoirs to prevent salt build-up or simply to provide for draining upon occasion, drain piping should be provided in accordance with manufacturers' recommendations.

From the standpoint of maintenance, each type of cooler has its own traits. The excelsior and spunglass pads, if they are partially wet and partly dry or almost dry, must accumulate salt deposits and may build up some organic deposits.

Poor Maintenance Problems

Poor maintenance allows excessive salt and organic build-up and can cause channeling of the water,

clogging of the media, rotting of excelsior, and unpleasant odors. Channeling of the water may lead it to the louvered housing and start rapid corrosion with attendant poor appearance. Replacing or re-packing the pads is about the only cure.

Flooded pads will not be so subject to salt deposit provided concentration in the pan or water sump, or reservoir is kept down by periodic regular draining. In all types using random packed pads, displacement of the pad material to produce open holes will allow by-passing of air and lower efficiency. Such holes should be stuffed with new media or the pad completely serviced.

The addition of a water treatment chemical to the water in flooded pad types may make washing down practical as a means of prolonging pad life against salt deposit.

Steel trays or other parts are usually painted or treated by the manufacturer to retard corrosion. Renewing this coating periodically will obviously prolong the useful life of the cooler. Where steel is the principle material of construction, electrolysis and rapid corrosion will usually result from introducing brass or copper fittings or parts into the installation. Installation and maintenance should be planned to avoid contacts between dissimilar metals.

Spray chamber types with drift eliminators functioning at least partially as evaporators can suffer

from plugged nozzles, but cleaning is simple. Glass fiber pad eliminators might be subject to local deterioration by spray impingement and require some rearrangement of water deflectors, etc. A completely flooded drift eliminator is so close to the entrainment point that it is difficult to set the air flow on the border line necessary.

Salt Deposit Problems

For this reason many eliminators are wet on one side and practically dry on the other. The necessary evaporation to produce this condition leaves a salt deposit so cleaning is necessary as part of maintenance. Salt deposits when allowed to build up may cause serious entrainment because of higher velocity in the plugged pad or because of points developing from which water tends to drip and so make it easy to be entrained.

The regular configuration evaporative media types use screen, perforated metal, or other material and are usually intended for long time service. Materials should have been selected so as to avoid electrolysis and other types of corrosion. The permanent type of media structure allows for cleaning without replacement.

If corrosion has been properly guarded against, the problems of dirt and salt or scale are about the worst that have to be contended with. The strength of the evaporative surface allows washing with a strong stream of water and this should be done periodically. Sediment in water trays and tanks should be washed down also. Water treatment, provided for by some manufacturers, helps keep scale and salt deposits soft so they can be hosed off.

Cleaning Instructions

When cleaning is necessary, proper concentrations of an acid such as sulphuric, hydrochloric, or sulfamic can be used to remove tight scale. When using acid, the tank and media must be thoroughly washed before returning the unit to service.

Mechanical and electrical equip-

ment requires the usual maintenance, but since so many types of accessories are used no special recommendations can be made.

Evaporative cooling is really a rediscovery of an old thing. Where it was crude and unpredictable, it is now polished and operates under known laws in a predictable fashion. From the handman's art it has developed into an industry. Knowing its properties, planning its application, and being satisfied with the results are all part of the engineers contact with this cooling method.

It is up to engineers to realize the most out of this useful addition to the list of cooling methods and use it in its proper place. It is hoped the discussion just presented will stimulate the application of the engineering principles mentioned to the application of evaporative cooling.

Change in Delco Products Sales Posts Announced

DAYTON—Three promotions in the sales section of the Delco Products Div. of General Motors have been announced by J. N. Tilbrook, Delco sales manager.

Robert Lakin, manager of the Detroit branch office of Delco Products, has been promoted to the position of assistant sales manager with headquarters in Dayton.

Mark Rasper, who was supervisor of shock absorber and actuator sales, has been promoted to manager of the Detroit office.

Charles Richter, formerly sales engineer in the Detroit office, will now serve as supervisor of shock absorber and actuator sales at Dayton.

All three men have been with Delco Products many years.

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TOLEDO—Air conditioning will be installed in a new \$45,000 store building to be erected at 139-41 Main St. for Wachter Shoes. The store will have 2,700 sq. ft. of floor space.

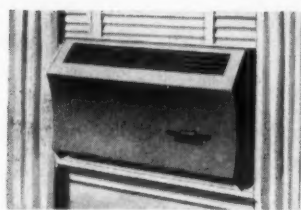
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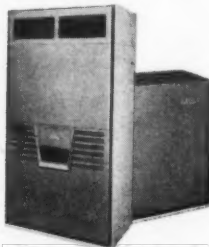
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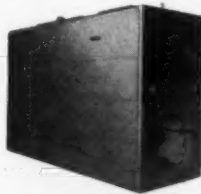
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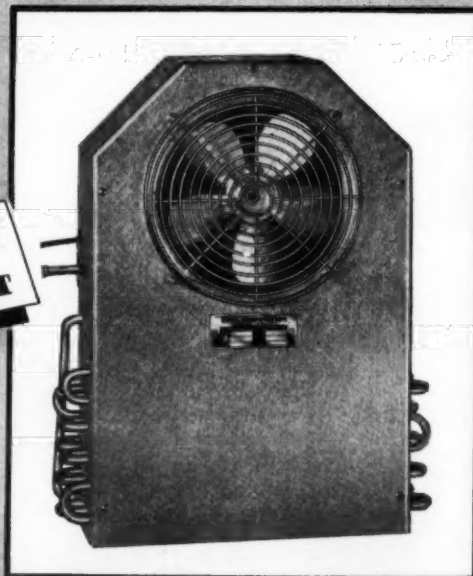
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SLANTS ON SERVICE

Serviceman Gives Views On 'Tin Pest' Problem

Edinboro, Pa.

Editor:

Under "Slants on Service" in the March 22 issue of your NEWS, the two letters discussing the use of 95-5 solder on refrigeration lines operating at low temperatures may have successfully defended the relative positions of the writers and closed the issue as far as they were concerned, but they left unsaid some pertinent facts of interest to the mechanic who makes the joints and repairs the leaks, if any.

According to the *Encyclopaedia Britannica*, the transition temperature below which the phenomenon called "tin pest" occurs, is 13.2° C. or 55.7° F. This places parts of all refrigeration systems, including comfort cooling, in the range affected by it.

The Tin Research Institute indicates in the quotation from "Notes on Soldering" that they thoroughly understand the problem and whether the solder contains 5% of antimony or lead, the autocatalytic transformation once called a disease of tin, is not the principal factor in the deterioration of soldered joints in refrigerant lines operating below the transition temperature.

Personal observation will confirm the fact manufacturers have used "boiler" type evaporators with the tubes soft-soldered into the headers and that these coils have been removed from service after as many as 20 years in a -10° F. brine with the joints in perfect condition.

Over the same period of use, coils of similar construction, operating from plus 20° F. to above freezing, have literally fallen apart. Apparently, low tempera-

ture cannot be the reason for soft-solder joint failure.

During the period referred to by J. H. Spence of Hussmann in the opening sentence of his letter, this writer had many repair jobs on factory fabricated coils used in food refrigerators of the 36" and up range of temperatures, and the talk among servicemen at that time was of the opinion that this so-called "rotting out" of soldered joints was caused by chemical action induced by the presence of certain foods. That this was not entirely true has been proven since, by the same experience with direct expansion coils in comfort cooling.

But to get to the point of why objections have come up as to the use of 95-5 on refrigerant lines, the proposition can be simply stated: It is too difficult to handle under field conditions.

A refrigerant suction line that is subject to periodic freezing and defrosting, whether normally within a fixture or abnormally outside the fixture, due to erratic expansion valve operation, must have perfect joints, a perfect joint not being one that will merely pass a 300-p.s.i. pressure test, but one in which the solder forms an even fillet between the fitting and the tube on the outside of the joint and does not leave even the smallest crevice in which water can accumulate.

Should this happen, the water freezing and expanding in cycles will eventually break the joint by collapsing the tube in exactly the same manner as water under a long flare nut, a condition known to most servicemen. This holds true for the hardest of the hard silver solders, also.

To make this kind of joint with 95-5 solder under good conditions of cleanliness, proper fit-up, and bench position is not easy, and

next to impossible under adverse conditions.

This is mainly due to the lack of a plastic stage in the melting and solidifying of the solder, its melting point and completely liquid point being the same; 449.6° F. It is either solid or flowing like water. By contrast, plumber's solder of 33% tin and 67% lead goes from 357.8° to 485.6° and 50-50 from 357.8° to 415.4° F.

In this writer's experience when 95-5 was first introduced by contractors for use in the field erection of refrigeration systems, a technique was evolved which was known among the mechanics using it as "tickling the torch", to pile enough solder on the outside to complete the joint.

It can now be admitted, also, that a few really tough spots were licked with good old 50-50. Needless to say, neither of these practices could be considered "cricket" today, and even then were only used in the desperation of trying to do a job with an unwieldy medium.

I believe that any conscientious mechanic in this craft who has had to live with his work for any length of time will agree that a persistently leaking job is one of the unpardonable sins that no contractor or owner will tolerate. Therefore, it is up to us, the ones closest to the problem, to not only be skilled in the use of the materials of the trade but to know their limitations.

J. G. NIEDERRITER

McIntire Appoints LeRiche Northwest Representative

LIVINGSTON, N. J.—The McIntire Co. here announces that R. E. LeRiche, of Van D. Clothier, Inc. will handle the promotion and sale of "DFN" driers, filters, and strainers in the states of Montana, Idaho, Oregon, and Washington, as well as Vancouver, B. C. His office is at 422 Smith Tower, Seattle.

LeRiche was formerly district manager for Minneapolis-Honeywell and also served as a manufacturer's representative in the refrigeration industry.

McIntire is also represented on the West Coast by Van D. Clothier, Inc. under direction of Van D. Clothier, in Los Angeles and under direction of John A. Marshall in San Mateo.

Bush, Heat-X-Changer Set Up Warehouses In Atlanta, K. C.

W. HARTFORD, Conn.—The Bush Mfg. Co. and its wholly-owned subsidiary, Heat-X-Changer Co., have announced the establishment of warehouse facilities at 114 Memorial Dr. S. W. in Atlanta, and with Tresko, Inc., 2418 Walnut St., Kansas City, Mo.

The warehouses will be utilized jointly by the two concerns to insure rapid delivery and prompt service to customers in those areas.

New Refrigeration Hose Features Low Diffusion

WILMINGTON, Del.—Development of two new refrigeration service hoses "designed for the lowest possible diffusion of refrigerants" was announced recently by Electric Hose & Rubber Co.'s product development laboratory.

This new type of hose has been designed to serve a variety of needs in the refrigeration and air conditioning fields.

"It can be easily and satisfactorily installed in refrigeration units of boxcars, ships, trucks, and cold storage rooms, as well as in air conditioning units of railroad passenger cars, stores, theaters, offices, homes, and automobiles," the company stated.

"In addition to offering the lowest possible rate of diffusion, Electric Hose & Rubber's refrigeration hose also features freedom from contamination of the refrigeration system, resistance to oil, and excellent serviceability over a broad range of -40° F. to 250° F."

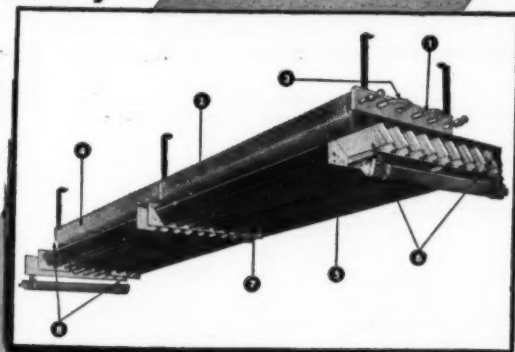
A choice of two styles is currently being offered. One, style 3541, is designed for use with "Freon 12"; the other, style 3542, for use with "Freon 22." Both styles are manufactured in a wide range of sizes, from 3/8 in. to 1 1/4 in. I. D.

To satisfy the individual requirements of customers, the hoses can be either textile or wire reinforced.

"some combinations can't be beat!"

Tenney COIL AND PAN COMBINATIONS

For it takes a combination—a well integrated team of sound engineering and quality craftsmanship—to produce the most efficient and durable Coil and Pan Combinations. That's why, for either standard or special installations, it pays to "take it to TENNEY."



1. Copper-welded connections 2. Super-sensitive fins 3. Electro-film-plated tubing 4. Mechanically molded bond of faceted fin to tube 5. Louvers of heavy aluminum alloy 6. Scientifically placed louvers for improved air circulation 7. Louvers temperature-equalized to prevent dripping 8. Adjustable pull hook hanger for easy installation and cleaning

SERVICEMEN CONTRACTORS, JOBBERS, ENGINEERS

Tenney brings you the advantages of advanced engineering and manufacturing facilities to handle any and every refrigeration problem, for the Tenney line is built to suit your needs. Outline your problem, and let us prove that a Tenney unit will solve it. Tenney Engineering, Inc., Dept. F.

Coils And Coil & Pan Combinations For 9 ft. Walk-In Coolers									
COIL ONLY	COIL AND PAN COMBINATION	COIL ONLY	COIL AND PAN COMBINATION	COIL ONLY	COIL AND PAN COMBINATION	COIL ONLY	COIL AND PAN COMBINATION	COIL ONLY	COIL AND PAN COMBINATION
SIZE	17" 7/8	SIZE	17" 7/8	SIZE	17" 7/8	SIZE	17" 7/8	SIZE	17" 7/8
1.4	200	1.4	200	1.4	200	1.4	200	1.4	200
1.5	200	1.5	200	1.5	200	1.5	200	1.5	200
1.6	200	1.6	200	1.6	200	1.6	200	1.6	200
1.7	200	1.7	200	1.7	200	1.7	200	1.7	200
1.8	200	1.8	200	1.8	200	1.8	200	1.8	200
1.9	200	1.9	200	1.9	200	1.9	200	1.9	200
2.0	200	2.0	200	2.0	200	2.0	200	2.0	200
2.1	200	2.1	200	2.1	200	2.1	200	2.1	200
2.2	200	2.2	200	2.2	200	2.2	200	2.2	200
2.3	200	2.3	200	2.3	200	2.3	200	2.3	200
2.4	200	2.4	200	2.4	200	2.4	200	2.4	200
2.5	200	2.5	200	2.5	200	2.5	200	2.5	200
2.6	200	2.6	200	2.6	200	2.6	200	2.6	200
2.7	200	2.7	200	2.7	200	2.7	200	2.7	200
2.8	200	2.8	200	2.8	200	2.8	200	2.8	200
2.9	200	2.9	200	2.9	200	2.9	200	2.9	200
3.0	200	3.0	200	3.0	200	3.0	200	3.0	200
3.1	200	3.1	200	3.1	200	3.1	200	3.1	200
3.2	200	3.2	200	3.2	200	3.2	200	3.2	200
3.3	200	3.3	200	3.3	200	3.3	200	3.3	200
3.4	200	3.4	200	3.4	200	3.4	200	3.4	200
3.5	200	3.5	200	3.5	200	3.5	200	3.5	200
3.6	200	3.6	200	3.6	200	3.6	200	3.6	200
3.7	200	3.7	200	3.7	200	3.7	200	3.7	200
3.8	200	3.8	200	3.8	200	3.8	200	3.8	200
3.9	200	3.9	200	3.9	200	3.9	200	3.9	200
4.0	200	4.0	200	4.0	200	4.0	200	4.0	200
4.1	200	4.1	200	4.1	200	4.1	200	4.1	200
4.2	200	4.2	200	4.2	200	4.2	200	4.2	200
4.3	200	4.3	200	4.3	200	4.3	200	4.3	200
4.4	200	4.4	200	4.4	200	4.4	200	4.4	200
4.5	200	4.5	200	4.5	200	4.5	200	4.5	200
4.6	200	4.6	200	4.6	200	4.6	200	4.6	200
4.7	200	4.7	200	4.7	200	4.7	200	4.7	200
4.8	200	4.8	200	4.8	200	4.8	200	4.8	200
4.9	200	4.9	200	4.9	200	4.9	200	4.9	200
5.0	200	5.0	200	5.0	200	5.0	200	5.0	200
5.1	200	5.1	200	5.1	200	5.1	200	5.1	200
5.2	200	5.2	200	5.2	200	5.2	200	5.2	200
5.3	200	5.3	200	5.3	200	5.3	200	5.3	200
5.4	200	5.4	200	5.4	200	5.4	200	5.4	200
5.5	200	5.5	200	5.5	200	5.5	200	5.5	200
5.6	200	5.6	200	5.6	200	5.6	200	5.6	200
5.7	200	5.7	200	5.7	200	5.7	200	5.7	200
5.8	200	5.8	200	5.8	200	5.8	200	5.8	200
5.9	200	5.9	200	5.9	200	5.9	200	5.9	200
6.0	200	6.0	200	6.0	200	6.0	200	6.0	200
6.1	200	6.1	200	6.1	200	6.1	200	6.1	200
6.2	200	6.2	200	6.2	200	6.2	200	6.2	200
6.3	200	6.3	200	6.3	200	6.3	200	6.3	200
6.4	200	6.4	200	6.4	200	6.4	200	6.4	200
6.5	200	6.5	200	6.5	200	6.5	200	6.5	200
6.6	200	6.6	200	6.6	200	6.6	200	6.6	200
6.7	200	6.7	200	6.7	200	6.7	200	6.7	200
6.8	200	6.8	200	6.8	200	6.8	200	6.8	200
6.9	200	6.9	200	6.9	200	6.9	200	6.9	200
7.0	200	7.0	200	7.0	200	7.0	200	7.0	200
7.1	200	7.1	200	7.1	200	7.1	200	7.1	200
7.2	200	7.2	200	7.2	200	7.2	200	7.2	200
7.3	200	7.3	200	7.3	200	7.3	200	7.3	200
7.4	200	7.4	200	7.4	200	7.4	200	7.4	200
7.5	200	7.5	200	7.5	200	7.5	200	7.5	200
7.6	200	7.6	200	7.6	200	7.6	200	7.6	200
7.7	200	7.7	200	7.7	200	7.7	200	7.7	200
7.8	200	7.8	200	7.8	200	7.8	200	7.8	200
7.9	200	7.9	200	7.9	200	7.9	200	7.9	200
8.0	200	8.0	200	8.0	200	8.0	200	8.0	200
8.1	200	8.1	200	8.1	200	8.1	200	8.1	200
8.2	200	8.2	200	8.2	200	8.2	200	8.2	200
8.3	200	8.3	200	8.3	200	8.3	200	8.3	200
8.4	200	8.4	200	8.4	200	8.4	200	8.4	200
8.5	200	8.5	200	8.5	200	8.5	200	8.5	200
8.6	200	8.6	200	8.6	200	8.6	200	8.6	200
8.7	200	8.7	200	8.7	200	8.7	200	8.7	200
8.8	200	8.8	200	8.8	200	8.8	200	8.8	200
8.9	200	8.9	200	8.9	200	8.9	200	8.9	200
9.0	200	9.0	200	9.0	200	9.0	200	9.0	200
9.1	200	9.1	200	9.1	200	9.1	200	9.1	200
9.2	200	9.2	200	9.2	200	9.2	200	9.2	200
9.3	200	9.3	200	9.3	200	9.3	200	9.3	200
9.4	200	9.4	200	9.4	200	9.4	200	9.4	200
9.5	200	9.5	200	9.5	200	9.5	200	9.5	200
9.6	200	9.6	200	9.6	200	9.6	200	9.6	200
9.7	200	9.7	200	9.7	200	9.7	200	9.7	200
9.8	200	9.8	200	9.8	200	9.8	200	9.8	200
9.9	200	9.9	200	9.9	200	9.9	200	9.9	200
10.0	200	10.0	200	10.0	200	10.0	200	10.0	200

A complete range of standard sizes

Special sizes built to order



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ENGINEERING, INC.

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Plants: Union, N. J. and Baltimore, Md.

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A NEW Leak Detector!

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★ LIGHTS INSTANTLY

★ SUPER SENSITIVE

★ POSITIVE, SPLIT-SECOND DETECTION

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LIQUEFIED LP PETROLEUM

Halide GAS LEAK DETECTOR

Here is the most important advancement in portable Halide gas leak detectors in recent years! Developed by Turner engineers, this new unit offers you easier handling... greater sensitivity... the convenience of a light weight disposable fuel tank. Instantly and accurately detects leaks of all non-combustible Halide refrigerants; reacts to gas by easy-to-see changes in color and intensity of flame. You will find the Turner detector an efficient tool of superior quality...

FEATURES

SUPER SENSITIVE... unsurpassed for positive reaction to non-combustible Halide gas leaks in even the most minute concentrations. Color changes in flame are brilliant and show instantly... speeds testing... leaves nothing to guesswork. More powerful suction draws fumes to reaction plate faster

Buy Peerless FOR PERFORMANCE



The PIE PLATE UNIT

Unmatched for Efficiency

Here is today's outstanding refrigeration value. The Peerless Pie Plate Coil Unit delivers maximum efficiency because it utilizes all of the cooling surface. Its compact design permits it to fit into less space.

The power-packed round coil of improved evaporator design is ideally suited for use in soda fountains, direct draw bars, reach-in refrigerators and similar cooling applications. It has all-aluminum casing and brackets; aluminum fin surface on copper tubing; oilless fan motor. Available in three sizes, with or without drain pan. Write for detailed information.

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Chicago 22, Illinois, U.S.A.

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New" page.

For Study, Living, Worship

3 Air Conditioning Units Provide Comfort For Students In Areas Only as Needed

ST. LOUIS—Installation of air conditioning in the House of Philosophy recently completed by a branch of St. Louis university is reported by United States Air Conditioning Corp., providing another example of the growing market for cooling equipment in educational institutions.

The two, three, and five-story structure, erected for the Missouri Province Educational Institute of the Catholic Society of Jesus, provides complete housing and educational facilities for students in the philosophy stage of their training for the priesthood. It comprises three functional units—one for administration and study, one for living, and the third for worship.

Three UsAirco factory-assembled central station units have been installed to furnish thermostatically controlled, year-round air conditioning for selected areas of the building, according to T. J. Waddell, UsAirco's St. Louis representative.

In the three-story administration section, the second floor library is heated and cooled by a 15-ton "Refrigerated Kooler-air" unit. Separate 30-ton models serve each floor of the two-story chapel

wing, which also includes dining facilities for the students.

Use of separate systems for the three areas was adopted so that each unit need operate only when the space it conditions is actually in use.

Each central station unit is equipped with two-row steam coils and modulating steam valves which provide even winter temperatures. Six-row cooling coils furnish maximum dehumidification to cope with high local summer humidity conditions. All compressors have 25, 50, and 75% modulation to meet varying load requirements.

The new House of Philosophy was designed by the Leo A. Daly Co., architect, and the air conditioning systems were installed by D. F. Edwards Co.

Dick Opens Asheville Store

ASHEVILLE, N. C.—Henry V. Dick and Co., wholesaler of refrigeration, air conditioning, and heating parts, held official opening of its store at 445 Biltmore Ave. here recently. Ed Crawford is manager of the store.

LISTING Complete Home Cooling Systems

AFCO Comfortmaker

American Furnace Co., 1300 Hampton Ave., St. Louis 10, Mo.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
*SH-105 CM	2	41½ 27 67½	Yes	850-1,000	Yes	No
*SH-120 CM	3	41½ 27 67½	Yes	1,000-1,200	Yes	No
*SH-180 CM	5	46 42 69½	Yes	850-1,000	Yes	No
BSH-2T	2	41½ 27 40½	Yes	1,000-1,200	Yes	No
BSH-3T	3	41½ 27 40½	Yes	1,000-1,200	Yes	No
BSH-5T	5	46 42 40½	Yes	850-1,000	Yes	No
SH-2T	2	21½ 27 40½	Yes	850-1,000	Yes	No
SH-3T	3	21½ 27 40½	Yes	850-1,000	Yes	No
SH-5T	5	26 42 40½	Yes	850-1,000	Yes	No

*Includes heating.

Air-O-Matic

Eureka Williams Co., Div. of Henney Motor Co., Inc., 1201 E. Bell St., Bloomington, Ill.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
AER-24	2	36 21 46½	Optional	800	Yes	No
AER-36	3	36 21 46½	Optional	1,200	Yes	No
AER-60	5	46 29 50½	Optional	2,000	Yes	No

Airtron

Airtron Corp., Holland, Ohio

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
ACR-200	2	29½ 21½ 59½	Optional	800	Yes	No
ACR-300	3	29½ 21½ 59½	Optional	1,200	Yes	No
Horizontal Units:						
ACH-200	2	41½ 28½ 19½	No	800	Yes	No
ACH-300	3	41½ 28½ 19½	No	1,200	Yes	No
Water Chiller Systems:						
ACW-200	2	23¼ 17¼ 26	No	No	No	No
ACW-300	3	23¼ 17¼ 26	No	No	No	No

Armstrong

Armstrong Furnace Co., 851 W. Third Ave., Columbus, Ohio

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
31A-R5-61	6 tons	52 23 56	Yes	2,400	Yes	No
31A-R5-51	5 tons	52 23 56	Yes	2,000	Yes	No
31A-R5-41	4 tons	52 23 56	Yes	1,600	Yes	No
31A-R5-31	3 tons	25 27 52	Yes	1,200	Yes	Yes
31A-R5-21	2 tons	25 27 52	Yes	800	Yes	Yes

Bal-Air

Bal-Air, Inc., 1210 McGavock St., Nashville, Tenn.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
ACR-2	2	46 28 78	Yes	800	Yes	Optional
ACR-3	3	46 28 78	Yes	1,200	Yes	Optional
ACR-5	5	46 28 78	Yes	2,000	Yes	Optional

Barkow Weatherwise

Aug. G. Barkow Mfg. Co., Inc., 2230 S. 43rd St., Milwaukee 15, Wis.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
FU-2	2	36 21 36	No	Yes	Yes	Yes
FU-3	3	36 21 36	No	Yes	Yes	Yes
FU-5	5	40 27 42	No	Yes	Yes	Yes
O-2	2	25 25 49½	Yes	800	Yes	Yes
O-3	3	25 25 49½	Yes	1,200	Yes	Yes

Bryant

Bryant Heater Div., 17825 St. Clair Ave., Cleveland 10, Ohio

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
2-590	2	25 28 63	Yes	800	Yes	Yes
3-590	3	27 28 63	Yes	1,200	Yes	Yes
5-590	5	33 28 68	Yes	2,000	Yes	Yes
2-581	2	23 28 31½	No	800	Yes	No
3-581	3	25 28 31½	No	1,200	Yes	No

Chrysler Airtemp

Chrysler Corp., Airtemp Div., 1600 Webster St., Dayton, Ohio

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
1502-1	2	35 19¼ 59	No	Yes	Yes	No
1503-2	3	35 19¼ 59	No	Yes	Yes	No
1505-1	5	48¼ 19¼ 59	No	Yes	Yes	No
1508-1	7½	48¼ 19¼ 59	No	Yes	Yes	No

Above models water cooled.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
1102	2	40 22 40	Optional	800	Yes	No
1103	3	44¼ 22 44	Optional	1,200	Yes	No
1202	2	27¼ 36 22	Optional*	800	Yes	No
1203	3	32¼ 36 22	Optional*	1,200	Yes	No

Above models air cooled.

*Can be used in combination with any furnace blower having adequate capacity to handle cooling requirements.

Clime-Matic

United Conditioning Corp., Croton Falls, N. Y.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SCF2	2	28 25 54½	Optional	1,000	Optional	Yes
SCF265	2	28 25 54½	Optional	1,200	Optional	Yes
SCF350	3	28 25 54½	Optional	1,500	Optional	Yes
SCF550	5	32 32 54½	Optional	2,500	Optional	Yes

Coleman

Coleman Co., Inc., 250 North St. Francis, Wichita 1, Kan.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
776A498*	2	25 30¼ 58	Yes	800	Yes	Yes
777A498*	3	25 30¼ 58	Yes	1,200	Yes	Yes
778A498*	5	25 30¼ 58	Yes	1,200	Yes	Yes
779A498*	5	25 37 58	Yes	2,000	Yes	Yes
776-498	2	24¼ 29¼ 58	Yes	800	Yes	Yes
777-498	3	24¼ 29¼ 58	Yes	1,200	Yes	Yes

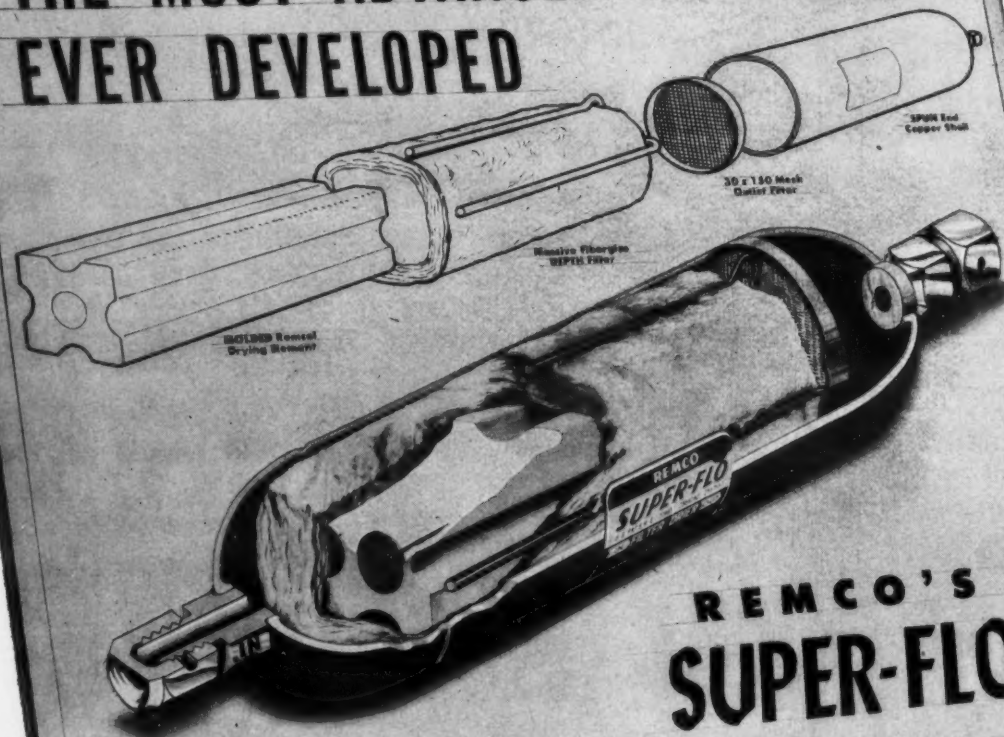
Above models self-contained.

Model No. (In Hp.)	Comp. Size	Dimensions (In.)— Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
763-498†	2	22¼ 53 30¼	Yes	725	Yes	No
763-498†	2	22¼ 53 30¼	Yes	725	Yes	No
764-498†	3	22¼ 53 30¼	Yes	1,000	Yes	No
764-498†	3	22¼ 53 30¼	Yes	1,000	Yes	No
765-498†	5	23½ 48¼ 31¼	Yes	1,675	Yes	No
765-498†	5	23½ 48¼ 31¼	Yes	1,675	Yes	No
771A498	2	33 28 23½	Yes	Yes	Yes	Yes
772A498	3	33 34 23½	Yes	Yes	Yes	Yes
773-498	5	21¼ 34¼ 58	Yes	2,000	Yes	Yes

Above models remote-type units.

*Front access. †Single phase. ‡Three phase.

THE MOST ADVANCED FILTER-DRIER EVER DEVELOPED



REMCO'S SUPER-FLO

with Molded Remcal Drying
and Fiberglass Depth Filtering

Check Super-Flo advantages against any other liquid-line filter-drier

DEPTH FILTERING: A massive fiberglass bag, with unsurpassed depth filtering efficiency, removes unprecedented quantities of even the most minute foreign particles. As a safety bonus, a 30x150 mesh Dutch weave outlet filter stops all particles larger than .0046".

MOLDED DRYING: The famous molded Remcal drying element is unexcelled for permanent refrigerant drying, even at liquid-line temperatures. Strong and stable, it will not dust or powder.

NO PRESSURE DROP: Ingenious design of flow channels and flow gradators and availability of the entire length of the massive fiberglass bag for filtering completely minimize pressure drop.

AMAZING PRICE: Check Super-Flo's price, for both original equipment and replacement, against ordinary driers which do not have massive depth filters, molded drying elements and spun-end copper shells. You'll be amazed.

TROUBLE-FREE LIFE: The leak-proof, rust-proof copper shell with spun ends insures maximum protection against refrigerant leakage, and guarantees long service.

¼ Thru 5 hp.

Available to the trade
through wholesalers every-
where.



Self-Contained Home Cooling Systems

Columbia

Columbia Specialty Co., Inc., 4925 Bradley Blvd., Chevy Chase 15, Md.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
2TAC	2	17½ 27½ 64	Optional	760	Yes	Yes
3TAC	3	22 31½ 66½	Optional	1,140	Yes	Yes
2TWC	2	17½ 27½ 64	Optional	760	Yes	Yes
3TWC	3	22 31½ 66½	Optional	1,140	Yes	Yes

AC models, air cooled; WC models, water cooled; 4 hp. and 6 hp. units may be had by combining two 2 hp. or two 3 hp., etc.

Cool-A-Matic

Automatic Firing Corp., 4417 Oleatha Ave., St. Louis, Mo.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
RS-200*	2	21½ 29 63	Yes	800	Yes	No
RS-300*	3	21½ 29 63	Yes	1,200	Yes	No
FAF-150-3†	3	39½ 48 85	Yes	1,200	Yes	Yes
FAF-150-5†	5	39½ 48 85	Yes	2,000	Yes	Yes

*These models are for cooling only and are adaptable to be installed with existing warm air heating systems.

†These models are combination heating and cooling units in heat side with gas or oil fired.

Cool-Ette

Cool-Ette, Inc., 20080 James Couzens Hwy., Detroit 35, Mich.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
R150B	1½	21 29 63	Optional	600	Yes	Yes
R200B	2	21 29 63	Optional	800	Yes	No
R300B	3	21 29 63	Optional	1,200	Yes	No

Above units are available either 220-60-1 or 220-60-3 in vertical and horizontal models.

Curtis

Curtis Mfg. Co., Refrigerating Machine Div., 1905 Kienlen Ave., St. Louis, Mo.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
RP250	2	40¼ 25½ 73	Yes	800	Yes	Not Required
RPH250	2	40¼ 25½ 73	Yes	800	Yes	Not Required
RP400	3	40¼ 25½ 73	Yes	1,200	Yes	Not Required
RPH400	3	40¼ 25½ 73	Yes	1,200	Yes	Not Required

Deering

Deering Air Conditioning Co., 1069 Celestial Ave., Cincinnati 2, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
CSA2-1	2	38 24¼ 20½	Optional	800	Yes	No
CSA2-2	2	38 24¼ 20½	Optional	800	Yes	No
CSA3-1	3	38 24¼ 20½	Optional	1,200	Yes	No
CSA3-2	3	38 24¼ 20½	Optional	1,200	Yes	No

Emerson

Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York 11, N. Y.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
RC2A2†	2	20 29½ 54	Yes	800	Yes	Optional
RC2B2†	2	20 29½ 54	Yes	800	Yes	Optional
RC3A2†	3	20 29½ 54	Yes	1,120	Yes	Optional
RC3B2†	3	20 29½ 54	Yes	1,120	Yes	Optional
RC3A3†	3	20 29½ 54	Yes	1,120	Yes	Optional
RC3B3†	3	20 29½ 54	Yes	1,120	Yes	Optional

*Have cooling-heating control. †Have cooling control.

Forston & Lincoln

The Forston Co., 1400 Conti St., Houston 2, Texas

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
204-C	2	54½ 28 28	No	....	Yes	....
304-C	3	56 29½ 25	No	....	Yes	....

(Air cooled, central system, remote or package.)

Frigidaire

Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
AGS*	3	46 36½ 75½	Yes	1,100	Yes	Yes
AGS*	3	46 36½ 75½	Yes	1,100	Yes	Yes
AOS*	3	46 33½ 75½	Yes	1,100	Yes	Yes
AOS*	3	46 33½ 75½	Yes	1,100	Yes	Yes

*These units are for year-round air conditioning.

General Electric

General Electric Co., 5 Lawrence St., Bloomfield, N. J.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
FE15J	1.5	21 30 55	No	....	Yes	....
FE20J	2	21 30 55	No	....	Yes	....
FE25J	3	21 30 55	No	....	Yes	....
FE30J	3	21 30 55	No	....	Yes	....
FE50J	5	25 30 55	Yes	2,000	Yes	....
FE15JD	1.5	25 36 24	No	....	Yes	....
FE20JD	2	25 36 24	No	....	Yes	....
FE25JD	3	25 36 24	No	....	Yes	....
FE30JD	3	29 36 24	No	....	Yes	....
FE15JH	1.5	25 36 24	No	....	Yes	....
FE20JH	2	25 36 24	No	....	Yes	....
FE25JH	3	25 36 24	No	....	Yes	....
FE30JH	3	29 36 24	No	....	Yes	....

Above models water cooled.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
FG15J	1.5	21 30 55	No	....	Yes	....
FG20J	2	21 30 55	No	....	Yes	....
FG25J	3	21 30 55	No	....	Yes	....
FG30J	3	21 30 55	No	....	Yes	....
FG50J	5	25 30 55	Yes	2,000	Yes	....
FG15JD	1.5	25 36 24	No	....	Yes	....
FG20JD	2	25 36 24	No	....	Yes	....
FG25JD	3	25 36 24	No	....	Yes	....
FG30JD	3	29 36 24	No	....	Yes	....
FG15JH	1.5	25 36 24	No	....	Yes	....
FG20JH	2	25 36 24	No	....	Yes	....
FG25JH	3	25 36 24	No	....	Yes	....
FG30JH	3	29 36 24	No	....	Yes	....

Above models air cooled.

Governair

Governair Corp., 513 North Blackwelder, Oklahoma City 4, Okla.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SC-30B	3	33½ 24½ 70½*	Yes	1,215	Yes	No
SC-50B	5	42 27½ 70½*	Yes	2,050	Yes	No
SC-75B	7½	52 30½ 70½*	Yes	3,035	Yes	No
SC-100B	2-5's	74½ 29½ 77*	Yes	4,040	Yes	No
SCU-10	10	99½ 38½ 66½*	Yes	3,500	No	No
SC-150B	2-7½'s	83½ 31½ 80*	Yes	6,070	Yes	No
SCU-15	15	119½ 44½ 70½*	Yes	5,200	No	No
SCU-20	20	129½ 49½ 78½*	Yes	7,000	No	No

*Does not include plenum.

Heil

The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
AC-201	2	24¼ 43½ 53	No	....	Yes	Optional
AC-203	2	24¼ 43½ 53	No	....	Yes	Optional
AC-301	3	24¼ 43½ 53	No	....	Yes	Optional
AC-303	3	24¼ 43½ 53	No	....	Yes	Optional
ACB-201	2	24¼ 43½ 53	Yes	800	Yes	Optional
ACB-203	2	24¼ 43½ 53	Yes	800	Yes	Optional
ACB-301	3	24¼ 43½ 53	Yes	1,200	Yes	Optional
ACB-303	3	24¼ 43½ 53	Yes	1,200	Yes	Optional
CH-201	2	23½ 42½ 20½	No*	....	Yes	Optional
CH-203	2	23½ 42½ 20½	No*	....	Yes	Optional
CH-301	3	23½ 42½ 20½	No*	....	Yes	Optional
CH-303	3	23½ 42½ 20½	No*	....	Yes	Optional

*For use either in series with winter air conditioner, or with optional Heil Series BC cabinet blowers.

Homeaire

York-Shipley, Inc., York, Pa.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SAC-15	1½	25 70 19	Yes	660	No	No

Model is air-cooled, horizontal type for attic or crawl space application.

Home Weathermaker

Carrier Corp., 300 S. Geddes St., Syracuse 1, New York

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
38C2*	2½	38 28 62	Yes	800	Yes	Yes
38C2*	1½†	37¼ 27½ 62	Yes	800	Yes	Yes
38C2*	2†	37¼ 27½ 62	Yes	800	Yes	Yes
38C4*	3†	46 28½ 63½	Yes	1,200	Yes	Yes
38C4*	3†	46 28½ 63½	Yes	1,200	Yes	Yes
38D2*	2†	Evaporative coil 31¼ 23¼ 12¼ Condensing unit 42½ 28½ 27½	No	....	Yes	....
38D4*	3†	Evaporative coil 33¼ 27 16½ Condensing unit 50 33¼ 26½	No	....	Yes	....
38B6*	5	50 40½ 70	Yes	2,000	Yes	Yes
38B8*	7½	58½ 40½ 70	Yes	3,000	Yes	Yes
50K2	2	36 21 50	Yes	1,000	Yes	Yes
50K4	3	41 22½ 58	Yes	1,500	Yes	Yes
50K6	5	41 22½ 64	Yes	2,500	Yes	Yes
50K8	7½	48 30¼ 77	Yes	3,750	Yes	Yes

*Models 38C2, 38C4, 38D2, 38D4, 38B6, and 38B8 are rated in tons. †Air cooled.

†Water cooled. Heating coils on all equipment in the 50K line are optional.

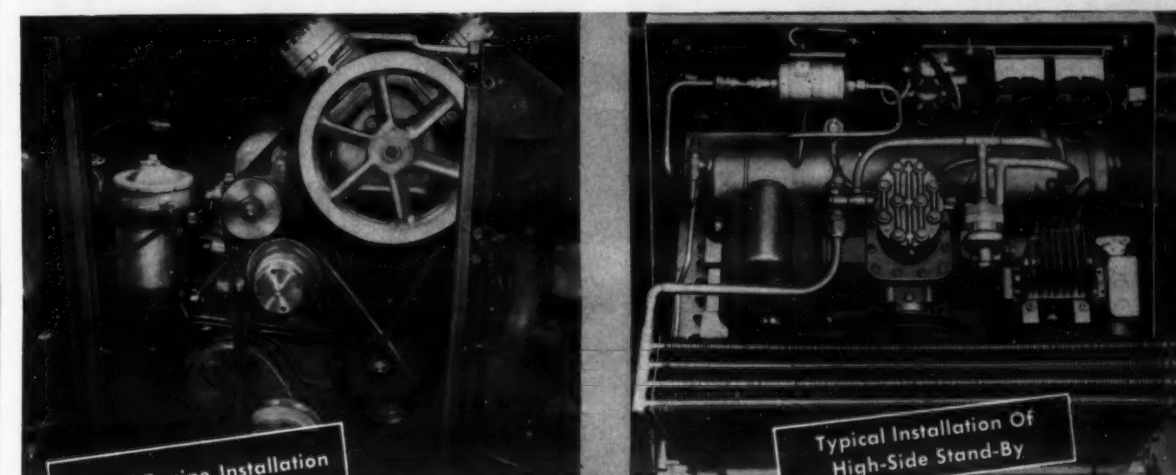
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Horizontal or vertical types with dimensions up to 9 inches outside diameter and lengths to 5 feet. Manufactured of seamless or welded carbon steel tubing, they can be supplied with as many openings as required with or without valves or fittings. Prompt deliveries to meet your production requirements in any quantities desired. Please include prints and specifications with inquiries.

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These new Lehigh TWO-COMPRESSOR SYSTEMS, now available through factory trained and fully qualified distributors, take fifty percent of the labor and guess-work out of the installation of truck refrigerating equipment. Not only are they much more compact than older models, but once installed they give much more room for servicing with all parts easily accessible. Controls, too, have been greatly simplified. Each "package" now contains every needed component and accessory for installation. Included are such important items as mounting brackets, wire clips, cord hangers, mounting screws and bolts, etc. Thousands of these fine Lehigh systems are now in use. Basic quality is unchanged. Only the package has been improved — for your greater convenience! We'll be glad to send you data sheets.

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Write for catalog and name of your nearest distributorTWO-COMPRESSOR SYSTEMS
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Manufacturers of Malleable and Grey Iron Castings, Refrigerating Equipment, Air Valves, Automatic Vending Machines

Watt Heads Worthington Large Equipment Section

HARRISON, N. J.—Fred J. Watt has been named manager of a newly-combined section of Worthington Corp.'s Air Conditioning & Refrigeration Div. at the corporation's executive offices here, M. M. Lawler, vice president, announced recently. Known as the Central Station and Ammonia Equipment Section, the new section is a combination of the Ammonia Equipment Section and the Central Station Equipment Section.

Since Watt joined Worthington in 1936 to head up the Air Conditioning for National Accounts, he has served as district representative of the company's Air Conditioning & Refrigeration Div. in Washington, D. C.; assistant manager of the same division; and product manager of the Ammonia Equipment Section.

A New Jersey licensed professional engineer, Watt received his education in engineering and architecture at St. Benedict's college and Fawcett School of Fine Arts. He is a member of the American Society of Refrigerating Engineers and other organizations.

These Features Will Sell-

Barkow

WEATHERWISE AIR CONDITIONER For YOU!

• THEY EXCEED RATED CAPACITY

Ex.—2-ton unit produces 28,000 B.t.u. as compared to the average of 24,000.

• PROVIDE ACCURATE HUMIDITY CONTROL

Special fin design effects 10% greater dehumidification.

• EASY TO SERVICE

All parts accessible from front panel.

• WASHABLE FILTER SCREENS

Easily removed for thorough cleaning.

• COMPACT

Occupy only 6 sq. ft. of floor space.

• SELF-CONTAINED UNIT

With water regulator and magnetic starter.

• LOW WATER REQUIREMENT

Use approximately 15% less water.

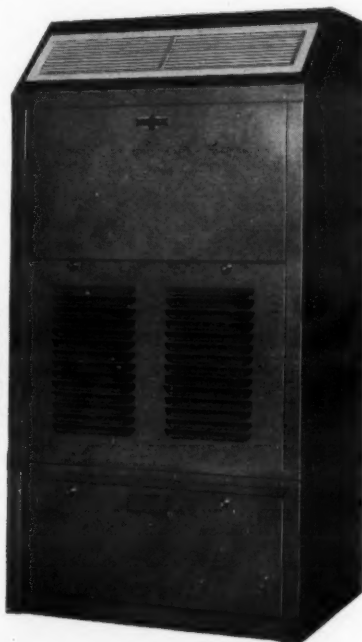
• COMPLETE PACKAGED UNIT

Shipped assembled ready for fast installation.

• ALUMINUM FIN EVAPORATOR

Copper tube with capillary tube.

**C U
SERIES**
2, 3 and 5-Ton
sizes



Even a casual glance at this list points up important reasons for Barkow's outstanding success in commercial air conditioning. Add to these, Barkow's advanced engineering which includes sealed compression with Freon 22 refrigerant, counterflow cleanable type condenser suitable for cooling tower application, and thermostatic control—high-pressure cutout thermal overload and low-voltage protector,

and you have a combination that assures complete efficiency, economy and lasting customer satisfaction.

Available in 2, 3 and 5-ton sizes either with plenum or without plenum for ductwork. The return air section of the 5-ton unit is from front to rear with front air discharge grill. This model is also available with steam or hot air coils.

Barkow weatherwise units are favorites when replacements are made.



Valuable Exclusive territories available.

Write or wire for complete details.

refrigeration division

Aug. G. Barkow Mfg. Co., Inc.

2230 South 43rd Street

Milwaukee 15, Wisconsin

Self-Contained Home Cooling Systems

Homart

Sears Roebuck & Co., 925 So. Homan Ave., Chicago, Ill.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
546-5520	2	22½ 30½ 63	Yes	800	Yes	No
546-5531	3	22½ 30½ 63	Yes	1,200	Yes	No
546-5081	3	39½ 24 75	Yes	1,200	Yes	No
546-5051	5	39½ 24 75	Yes	2,000	Yes	No
546-5071	7½	39½ 24 75	Yes	2,800	Yes	No

Hupp

Hupp Corp., Refrigeration Products Div., 1250 West 76th St., Cleveland 2, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
H2-4	1½	21 36 46	Yes	750	No	No
H3-4	2	21 36 46	Yes	1,000	No	No

Janitrol

Surface Combustion Corp., P. O. Box 267, Columbus 16, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SAC24-45	2	26½ 26 60½	Yes	800	Optional	Optional
SAC36-45	3	26½ 26 60½	Yes	1,200	Optional	Optional
SAC60-45	5	40½ 26 60½	Yes	2,000	Optional	Optional

Luxaire

The C. A. Olsen Mfg. Co., Elyria, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
2-A-100	2	36½ 26 63	Yes	800	Yes	Yes
2-O-84	2	36½ 26 63	Yes	800	Yes	Yes
3-A-140	3	42½ 29 66	Yes	1,150	Yes	Yes
3-O-112	3	42½ 29 66	Yes	1,150	Yes	Yes
220-A	2	31 23 51	Optional	.....	Yes	No
220-W	2	31 23 51	Optional	.....	Yes	No
310-W	3	32 23 50	Optional	.....	Yes	No
510-W	5	42 23 50	Optional	.....	Yes	No

Lennox

The Lennox Furnace Co., 4901 Marsalis Ave., P. O. Box 1839, Fort Worth, Texas

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
GAY2-100/4	2-2's	52½ 41½ 72½	Yes	1,600	Yes	Yes
GAY2-100/5	1-2	52½ 41½ 72½	Yes	2,000	Yes	Yes
GAY2-150/4	2-2's	52½ 41½ 72½	Yes	1,600	Yes	Yes
GAY2-150/5	1-2	52½ 41½ 72½	Yes	2,000	Yes	Yes
GAY2-150/6	2-3's	52½ 41½ 72½	Yes	2,400	Yes	Yes
GAY2-200/5	1-2	52½ 41½ 72½	Yes	2,000	Yes	Yes
GAY2-200/6	2-3's	52½ 41½ 72½	Yes	2,400	Yes	Yes
SC2-4	2-2's	24½ 41½ 44½	No	1,600	Yes	Yes
SC2-5	1-2	24½ 41½ 44½	No	2,000	Yes	No
SC2-6	2-3's	24½ 41½ 44½	No	2,400	Yes	No
CB10-2	1-2	22½ 27½ 61½	Yes	800	Yes	Optional
CB10-3	1-3	22½ 27½ 61½	Yes	1,200	Yes	Optional
CH2-2	1-2	30 34½ 15½	No	800	Yes	No
CH2-3	1-3	30 34½ 15½	No	1,200	Yes	No
CS2-2	1-2	24 40 20½	No	800	Yes	No
CS2-3	1-3	24 40 20½	No	1,200	Yes	No

Note: Above units in single and three phase.

Lipman

Lipman Div., Yates American Mach. Co., 126 E. Shirland Ave., So. Beloit, Ill.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
LH-200	2	36 22½ 46½	No	800	Optional	No
LH-300	3	36 22½ 46½	No	1,200	Optional	No
LH-500	5	46 29 50½	No	2,000	Optional	No
LH-750	7½	46 29 50½	No	3,000	Optional	No

Marvair

Muncie Gear Works, Inc., Muncie, Ind.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
401X*	1.5	26 28 40	Yes	600	Yes	No
402Y*	2	26 28 40	Yes	800	Yes	No
402XF2A	2	28 25 61	No	667	No	No
402XF3A	2	28 25 61	Yes	667	Yes	No
402XA	2	21 34 23	No	667	No	No
405XF2A	3	28 25 61	No	1,000	No	No
405XF3A	3	28 25 61	Yes	1,000	Yes	No
405XA	3	21 34 23	No	1,000	No	No
405	3	26½ 45½ 71½	Yes	1,200	Yes	Heat Pump
406	5	26½ 45½ 71½	Yes	2,000	Yes	Heat Pump
407	7.5	29½ 53½ 77½	Yes	3,000	Yes	Heat Pump
408	10	29½ 53½ 77½	Yes	4,000	Yes	Heat Pump

*Models 401X and 402Y are air-cooled systems.

Mayfair

Sunbeam Air Conditioner Div., American Radiator & Standard Sanitary Corp., Elyria, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
HC-200	(2) 1	34½ 37½ 45½	No	.....	Yes	No*
HC-300	(3) 1	34½ 55½ 45½	No	.....	Yes	No*
HCA-2F	2	25 27 65	Yes	800	Yes	Yes
HCA-3F	3	25 27 65	Yes	1,200	Yes	Yes
HCA-5F	5	42 34½ 68	Yes	2,000	Yes	No*
HCA-2	2	25 22 40	No	.....	Yes	Yes
HCA-3	3	25 22 40	No	.....	Yes	Yes
HCA-5	5	42 24 46	No	.....	Yes	No*
HCA-250A	(2) 1	31 23½ 51½	No	.....	Yes	No*

*Split evaporator control.

Meyer Marvellaire

Meyer Furnace Co., 1300 S. Washington, Peoria, Ill.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
HC-2	2	21 25 48	No	.....	Yes	No
HC-3	3	21 25 48	No	.....	Yes	No
HC-4	4	39 25 48	No	.....	Yes	No
HC-5	5	39 25 48	No	.....	Yes	No
HC-6	6	39 25 48	No	.....	Yes	No
*HC-21	2	21 25 69	No	.....	Yes	Yes
*HC-23	2	21 30 78	No	.....	Yes	Yes
*HC-31	3	21 25 69	No	.....	Yes	Yes
*HC-33	3	21 30 78	No	.....	Yes	Yes
*HC-21B	2	21 25 69	Yes	800	Yes	Yes
*HC-23B	2	21 30 78	Yes	800	Yes	Yes
*HC-31B	3	21 25 69	Yes	1,200	Yes	Yes
*HC-33B	3	21 30 78	Yes	1,200	Yes	Yes

*Includes heating system.

Moncrief

The Henry Furnace Co., Medina, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
2-A-100	2	36½ 26 63	Yes	800	Yes	Yes
2-O-84	2	36½ 26 63	Yes	800	Yes	Yes
3-A-140	3	42½ 29 66	Yes	1,150	Yes	Yes
3-O-112	3	42½ 29 66	Yes	1,150	Yes	Yes
220-A	2	31 23 51	Optional	.....	Yes	No
220-W	2	31 23 51	Optional	.....	Yes	No
310-W	3	32 23 50	Optional	.....	Yes	No
510-W	5	42 23 50	Optional	.....	Yes	No

Mor-Sun

Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7, N. Y.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
2HP	2	24½ 22 60½	Yes	1,000	Yes	No
3HP	3	24½ 22 60½	Yes	1,400	Yes	No

Mueller Climatrol

Mueller Climatrol, 2005 West Oklahoma Ave., Milwaukee 15, Wis.

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
900-901	2	28 33 51½	No	.....	Yes	Yes
900-901	3	28 40 55½	No	.....	Yes	Yes
900-901	5	28 40½ 61½	No	.....	Yes	Yes
900-901	7½	28 40½ 61½	No	.....	Yes	Yes
903-2	2	28 23½ 46	No	.....	Yes	No
903-3	3	36 27½ 46	No	.....	Yes	No
903-5	5	40 27½ 50	No	.....	Yes	No
906-2	2	20 35 41	No	.....	Yes	Yes
906-3	3	22 37 47	No	.....	Yes	Yes
906-2	2	22 38½ 62	Yes	800	Yes	Yes
906-3	3	24½ 45 67	Yes	1,200	Yes	Yes

Norman

Norman Products Co., 1150 Chesapeake Ave., Columbus 12, Ohio

Model No.	Comp. Size (In Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
HAC-2	2	24 42½ 23	Optional*	800	No	Optional
HAC-3	3	24 42½ 23	Optional*	1,200	No	Optional

*Units are available with the above cooling only package or with a blower.

Designed to be used with a Norman Duct Heater or in conjunction with a Norman Southerner Furnace. When used with the by-pass damper assembly it provides a separate air passage for the cooling and heating cycles.

Self-Contained Home Cooling Systems

Perfection

Perfection Stove Co., 7600 Platt Ave., Cleveland 4, Ohio

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
A-2	2	33 25 72*	Yes	850	Yes	Yes
A-3	3	33 25 72*	Yes	1,200	Yes	Yes

*To top of warm air and refrigerated air plenum chamber.

Philco

Philco Corp., Philadelphia 34, Pa.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
1253-K	2	31 24 59	Yes	1,000	Yes	Yes
1252-K	2	31 24 59	Yes	1,000	Yes	Yes
1251-K	2	31 24 59	No	1,000	Yes	Yes
1554-K	5	42 23 82 1/2	Yes	2,100	Yes	Yes
1354-K	3	32 23 82 1/2	Yes	1,200	Yes	Yes
1551-K	5	42 23 48	Optional	.....	Optional	.....
1351-K	3	32 23 48	Optional	.....	Optional	.....

Quiet-Air

Quiet-Air Mfg. Div., 1615 Second Ave., New York 28, N. Y.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
HA-2	2	34 25 35	Yes	800	No	No
HA-3	3	34 25 35	Yes	1,200	No	No

Schnacke

Schnacke, Inc., 1101 N. Governor, Evansville, Ind.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
3	3	37 1/2 27 42	Optional	1,200	Yes	No
5	5	37 1/2 27 42	Optional	2,000	Yes	No

Shana-Air

Shana Mfg. Co., 188 West Randolph St., Chicago, Ill.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SA 201	2	28 22 74*	Yes	800	Yes	No
SA 301	3	28 22 74*	Yes	1,200	Yes	No

*Height includes plenum.

Sterling

Sterling Air Conditioning Corp., 358 W. Main Ave., P. O. Box 1099, Gastonia, N. C.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SE-20						
Twin-Zone	1	36 20 32	Yes	500	Yes	Yes
RT2	2	36 22 47 1/2	Yes	800	No	No
RT3	3	36 22 47 1/2	Yes	1,200	No	No
BAC50-D	5	44 1/2 26 1/2 76 1/2	Yes	2,000	Yes	No
BAC75-D	7 1/2	51 1/2 30 1/2 82 1/2	Yes	3,000	Yes	No
BAC100-D	10	57 30 1/2 87 1/2	Yes	4,000	Yes	No

Sun

J. V. Patten Co., Sycamore, Ill.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
Floor type units						
CU-2A	2	36 27 36	No	.....	No	No
CU-3A	3	36 27 36	No	.....	No	No
CU-5A	5	40 27 68	No	.....	No	No
CU-2B	2	36 27 36	Yes	800	Yes	No
CU-3B	3	36 27 36	Yes	1,200	Yes	No
CU-5B	5	40 27 68	Yes	2,000	Yes	No
Suspended units						
O-2A	2	25 49 1/2 25	No	.....	No	No
O-3A	3	25 49 1/2 25	No	.....	No	No
O-2B	2	25 49 1/2 25	Yes	800	Yes	No
O-3B	3	25 49 1/2 25	Yes	1,200	Yes	No

Thatcher

Thatcher Furnace Co., Center St., Garwood, N. J.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
T20-1 F	2	39 21 1/2 62 1/2	Optional	800	Yes	No
T20-3 F	2	39 21 1/2 62 1/2	Optional	800	Yes	No
T30-1 F	3	39 21 1/2 62 1/2	Optional	1,200	Yes	No
T30-3 F	3	39 21 1/2 62 1/2	Optional	1,200	Yes	No
C 50-1 F	5	45 1/2 23 1/2 70 1/2	Optional	2,000	Yes	No
C 50-3 F	5	45 1/2 23 1/2 70 1/2	Optional	2,000	Yes	No
S 75-3 F	7.5	48 1/2 26 79 1/2	Optional	3,000	Yes	No
S100-3 F	10	62 1/2 26 84 1/2	Optional	4,000	Yes	No
S150-3 F	15	79 31 91 1/2	Optional	6,000	Yes	No

Town & Country, Ranchief

Conco Engineering Works, Mendota, Ill.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
RL-1A-20	2	21 37 1/2 47 1/2	Yes	800	Yes	No
RL-1A-30	3	21 37 1/2 47 1/2	Yes	800	Yes	No
RC-1A-20	2	22 31 49	No	.....	Yes	Yes
RC-1A-30	3	22 31 49	No	.....	Yes	Yes

Models RC-1A-20 and RC-1A-30 are counterflow cooling units used with Conco 70,000 and 100,000 B.t.u. output counterflow furnaces, respectively.

Typhoon & Prop-R-Temp

Typhoon Air Conditioning Co., Inc., 794 Union St., Brooklyn 15, N. Y.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
H-2UP-SW-100*	2	29 1/2 28 1/2 80	Yes	800	Yes	No
2UP-SW-100*	2	29 1/2 28 1/2 80	Yes	800	Yes	No
H-3UP-SW-100*	3	29 1/2 28 1/2 80	Yes	1,200	Yes	No
3UP-SW-100*	3	29 1/2 28 1/2 80	Yes	1,200	Yes	No
2CF-SW-75*	2	29 1/2 28 1/2 90 1/2	Yes	800	Yes	No
2CF-SW-78*	2	29 1/2 28 1/2 90 1/2	Yes	800	Yes	No
2CF-SW-90*	2	29 1/2 28 1/2 90 1/2	Yes	800	Yes	No
2CF-SW-110†	2	29 1/2 28 1/2 90 1/2	Yes	800	Yes	No
3CF-SW-90*	3	29 1/2 28 1/2 90 1/2	Yes	1,200	Yes	No
3CF-SW-110†	3	29 1/2 28 1/2 90 1/2	Yes	1,200	Yes	No
3BB-SW-140*	3	37 49 70	Yes	1,200	Yes	No
5BB-SW-140*	5	37 49 70	Yes	2,000	Yes	No

Heat Pumps:

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
30	2	35 1/2 22 1/2 80 1/2	Yes	800	Yes	.....
50	3	35 1/2 22 1/2 80 1/2	Yes	1,200	Yes	.....
75	5	42 21 1/2 91 1/2	Yes	2,000	Yes	.....
120	7 1/2	52 24 1/2 95 1/2	Yes	3,800	Yes	.....
150	10	52 24 1/2 95 1/2	Yes	4,000	Yes	.....
225	15	62 33 108 1/2	Yes	6,000	Yes	.....
300	20	62 33 108 1/2	Yes	8,000	Yes	.....
30H	3	82 26 24	.....	.....	Yes	.....
50H	3	82 26 24	.....	.....	Yes	.....
W-30H§	2	24 24 32	.....	.....	Yes	.....
W-50H§	3	24 24 32	.....	.....	Yes	.....

*Gas. †Oil. §All dimensions include allowance for plenum, if any. §Water-to-water.

UsAirco

United States Air Conditioning Corp., 33rd & Como S.E., Minneapolis, Minn.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
822100	2	44 37 57	Yes	850	Yes	Yes
822125	2	44 37 57	Yes	1,100	Yes	Yes
822150	2	44 37 57	Yes	1,300	Yes	Yes
823100	3	44 37 57	Yes	1,200	Yes	Yes
823125	3	44 37 57	Yes	1,200	Yes	Yes
823150	3	44 37 57	Yes	1,300	Yes	Yes

All models have the heating system as part of the cabinet enclosure.

U.S. Capitolaire

U. S. Radiator Corp., 439 Penobscot Bldg., Detroit 26, Mich.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
USC-30	2	37 22 47 1/2	Yes	800	Optional	Optional
USC-40	3	37 22 47 1/2	Yes	1,200	Optional	Optional
USD-2	2	32 1/2 44 1/2 23 1/2	No	.....	Optional	.....
USD-3	3	32 1/2 44 1/2 23 1/2	No	.....	Optional	.....
USD-5	5	40 1/2 55 1/2 22 1/2	No	.....	Optional	.....
USD-2		20 1/2 19 1/2	.....	.....	.....	.....
USD-3		20 1/2 19 1/2	.....	.....	.....	.....
USD-5		31 1/2 19 1/2	.....	.....	.....	.....

USC are conventional models. USD are spacesaver models. Coil can be detached readily and mounted in a remote location.

Winkler

Stewart-Warner Corp., U. S. Machine Div., Lebanon, Ind.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
WAC-2	2	26 26 67 1/2	Yes	800	Yes	Yes
WAC-3	3	26 26 67 1/2	Yes	1,200	Yes	Yes
WWC-2	2	26 26 40 1/2	Yes	800	Yes	Yes
WWC-3	3	26 26 40 1/2	Yes	1,200	Yes	Yes

Wonderair

Servel, Inc., Evansville, Ind.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
EB-72-G	2 tons	27 1/2 46 74 1/2	Yes	800	Yes	Yes
DC-96	3.3 tons	51 1/2 51 70 1/2	Yes	1,200	Yes	Yes
DE-96	5.4 tons	66 1/2 57 1/2 84 1/2	Yes	2,000	Yes	Yes
DE-144	5.4 tons	66 1/2 57 1/2 84 1/2	Yes	2,000	Yes	Yes

All are absorption units, gas, oil, or steam fired.

Year-Round Air Conditioning Planned for Norwalk Homes

NORWALK, Conn.—All-year air conditioning is planned for 40 homes in the new Westwood subdivision on the Newtown Turnpike in Norwalk at the Norwalk-Westport line.

The homes are expected to sell for \$35,000 and include eight rooms, three baths, and two-car garage. The kitchen will be equipped with refrigerator, range, dishwasher, and freezer.

The all-year air conditioning unit will be controlled by thermostats placed in various parts of the building. The project is sponsored by Jourimire Silverman and Ralph J. Lockwood.

Distributors Named by G-E AC

BLOOMFIELD, N. J.—Appointment of Heating and Air Conditioning Supply, Inc., Baltimore, as a wholesale distributor of G-E home heating and cooling products in the Baltimore area has been announced by General Electric's Air Conditioning Div.

Also announced was the appointment of the Love Sheet Metal Co. of Indianapolis as wholesale distributor for home heating and cooling products in the Indianapolis area. Love Sheet Metal Co. also handles G-E packaged air conditioners for commercial and industrial use.



You've got a customer when you've got what he wants!

What most air conditioning customers do want is efficient operation . . . and that means clean filters. Filter replacement is the service air conditioning units require most often. And to sell filters, you have to have 'em. Fiberglas Dust-Stop® Air Filters help you make and keep satisfied customers. They combine high efficiency with long life . . . permit depth penetration of dust without surface loading.

Fiberglas Dust-Stop Air Filters are handled from coast to coast by top distributors who can not only supply your stock needs but furnish you with helpful sales aids. If you don't know your local distributor, you can obtain his name from the nearest branch of Owens-Corning Fiberglas Corporation.

For better installations use FIBERGLAS DUCT INSULATION!

When you install or service a unit, why not use Fiberglas Duct Insulation? Your profit is greater and your customer is happier in the long run. It comes in a complete line that lets you choose exactly the product you want for the job . . . rigid or flexible, faced or unfaced. Unexcelled in both thermal efficiency and sound control. Owens-Corning Fiberglas Corporation, Dept. 107-D-19, Toledo 1, Ohio.

*Fiberglas and Dust-Stop are trademarks (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corp. for products made of or with fibers of glass.

OWENS-CORNING
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DUST-STOP
AIR FILTERS

Use of Proper Service Tools

Service of Heating, Cooling Systems Depends on Correct Adjustment; Clinic Discusses How To Use What Instruments for Maximum Efficiency

CHICAGO—It's as important to use proper instruments in servicing oil and gas-fired heating equipment as it is in refrigeration work, believes Lee Miles, sales engineer for Mueller Climatrol Div. of Worthington Corp.

He made this point at the recent Central States Refrigeration Service Clinic in conducting a session on residential heating and air conditioning, placing initial emphasis on heating because "you servicemen are already well versed on refrigeration."

Various problems involved in residential cooling were also discussed, however.

Proper Adjustment, Cleanliness Vital

With respect to oil-fired residential heating equipment, Miles asserted that "the main point in servicing is proper adjustment and cleanliness of the oil burner."

"An oil burner operates on an atomizing principle, and most troubles are due to its not getting the proper mixture of air and oil. Also, you have to balance properly the rate of firing to the requirements of the home."

"Suppose you get a service call that the burner won't operate. You'll find that the burner was shut off by the safety switch, so you have to find out why the burner tripped out. Immediate cause, of course, was that the stack temperature went down due to flame outage."

"This could have been the result of air in the oil line, a plugged line, or loss of the oil supply for another reason. Normally, pumps on oil burners are set to operate at 100 p.s.i. pressure. If that pressure isn't attained, the pump won't feed oil to the nozzle," Miles explained.

"Grooves in the nozzle itself can become plugged. If so, the grooves must be cleaned out with a soft cloth or broomstraw, or the nozzle replaced. Using a needle or wire to clean the nozzle may enlarge the grooves and throw off the flame pattern. This might result in a hot spot on the heat exchanger, which sooner or later would burn out."

"There is a screen of 150 mesh behind the nozzle which can also become plugged and restrict oil flow. This ought to be cleaned, too."

"After such repairs you must

adjust the burner. Remember, you can't set an oil burner by eye. It has to be set for a certain operating efficiency. The average is about 8%, which is the percentage of CO₂ in the flue gas.

"This is done with a CO₂ analyzer and is measured in the flue ahead of the barometric draft diverter. You can't give the homeowner the maximum heat obtainable from the oil without using a CO₂ analyzer," Miles emphasized.

"The barometric draft diverter," he added, "should be set for -.04 in. draft over the flame. Take the draft reading over the flame, and if you don't get a -.04 in. reading over the fire, then you'll have to clean out the furnace."

Stack Thermometer Needed For Oil Burner Service

"For servicing oil burners you must have a stack thermometer. Ordinarily you should expect a stack temperature of around 600° F."

"Faulty ignition and poor operation of furnaces cause most oil burner service problems," he continued. "Relation of the ignition electrodes to the flame is very important."

Self-Contained Home Cooling Systems

Unarco

Union Asbestos & Rubber Co., 332 S. Michigan Blvd., Chicago 4, Ill.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SCF-2	2	36 22 50	Yes	800	Yes	No
SCF-3	3	36 22 50	Yes	1,200	Yes	No

Unitaire

Westinghouse Electric Corp., Air Conditioning Div., 133 Readville St., Hyde Park, Boston 36, Mass.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
RU-31	3	28 21 56	Yes	1,200	....	....
RU-51	5	35 25 64	Yes	2,000	....	....

Vikimatic

Viking Mfg. Corp., 1747 Chester Ave., Cleveland, Ohio

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SCH 24	2	36 22 72	Yes	800	Yes	No
SCH 36	3	37 22 86	Yes	1,200	Yes	No
SCH 60	5	48 22 88	Yes	2,000	Yes	No
SCH 90	7 1/2	48 22 95	Yes	3,000	Yes	No
SCH 120	10	65 29 100	Yes	4,000	Yes	No

Worthington

Worthington Corp., Harrison, N. J.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
SCYR-350	3	37 21 51	No	1,200	....	....
SCYR-550	5	48 23 61	No	2,000	....	....

York

York Corp., Roosevelt Ave. & P. R. R., York, Pa.

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
151	1 1/2	22 19 39	Yes	770	Yes	No
201	2	22 19 39	Yes	925	Yes	No
HC7	3	17 19 22	No	....	Optional	No
HC10A	1	17 19 22	No	....	Optional	No
HC150	1 1/2	36 19 25	No	....	Optional	No
HC200A	2	36 19 25	No	....	Optional	No
HC352B	3	32 23 32	No	....	Optional	No
HC552B	5	42 23 32	No	....	Optional	No
HC250A	2	31 23 59	Optional	1,000	Optional	No
HC250W	2	31 23 59	Optional	1,000	Optional	No
*Have two compressors. All models have hermetic compressors.						
R2G100	2	36 26 63	Yes	800	Yes	Yes
R2F84	2 1/2	36 26 63	Yes	800	Yes	Yes
R3G140	3	44 29 66	Yes	1,100	Yes	Yes
R3F112	3 1/2	44 29 66	Yes	1,100	Yes	Yes

*Models R2G100 and R3G140 are gas fired. †Models R2F84 and R3F112 are oil fired. All models are combination heating and cooling.

Iron Fireman

Iron Fireman Mfg. Co., 3170 W. 106th St., Cleveland 11, Ohio

Model No.	Comp. Size (In. Hp.)	Dimensions (In.)—Width Depth Height	Own Blower (Yes or No)	Blower Rating (C.F.M.)	Temp. Control (Yes or No)	Damper Control (Yes or No)
C-201	2	24 19 38	No	800	Yes	Optional
C-203	2	24 19 38	No	800	Yes	Optional
C-301	3	24 19 38	No	1,200	Yes	Optional
C-303	3	24 19 38	No	1,200	Yes	Optional

Last digit in model number indicates single or three-phase.

"There are three settings that must be exactly as required by the manufacturer of the particular burner: The distance between the center-line of the nozzle and the electrodes, the distance between the end of the nozzle and the end of the electrodes, and the distance between the ends of the three electrodes themselves."

For the Mueller line, Miles said, the first of the above dimensions is 1/2 in.; the second, 1/4 in.; the third, 3/16 in.

"Be sure to read the manufacturer's instructions for his burner," he declared.

Tip Firing Tube Slightly

"One predominant installation fault found with oil burners, which you should check when installing or servicing, is to make sure the firing tube tips slightly into the refractory. Oil has a tendency to drip or bleed slightly upon shut-

down and will run off the nozzle into the firing tube.

"If the tube is tipped forward slightly, this oil will burn at the firing head, not back in the tube which it might do if the tube is tipped backwards."

Service problems on oil burners can involve motors and oil pumps which go bad and have to be replaced. These, Miles explained, are handled on an exchange basis much as expansion valves and other refrigeration items are.

"One service problem that is becoming more frequent today is pulsation of the burner. Although the primary cause is poor draft, it is more frequent now due to the catalytic oils we're getting. This oil more readily approaches explosive conditions."

"Pulsation is the variation in pressure in the heat exchanger. Introduction of secondary air into

(Concluded on next page)

"Dealers Prefer these New Viking BLOWER ASSEMBLIES"

Confirms Tom McIntyre, congenial Viking Salesman;

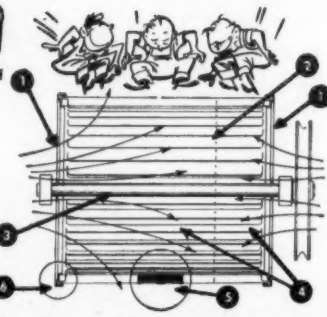
"And wholesalers like 'em, too."

Here are 2 Big Reasons Why...



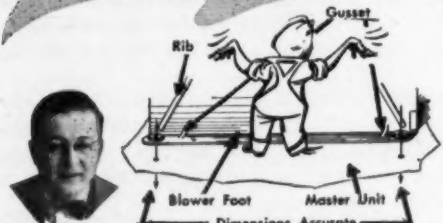
Added strength of mounting bracket insures pulley alignment reducing bearing and pulley wear.

Lock seam and end supports give greater blower wheel strength. Polished wheel shaft reduces bearing wear. No center support to impede air flow.



1 End-Supported Wheel 2 Aerodynamic Center
3 Polished Shaft 4 Free Flow of Air 5 Balanced
6 Lock Seam Construction

Read what these Experts Have to Say!



"My dealer's have always preferred Viking blowers, as package units and in furnaces and air conditioning units they install. They all like these new features Viking has now added, too. The strengthened blower feet with their extra accurate mounting holes should eliminate handling damage and installation time. All of which I like." That comment from Ray Decker of Decker-Reichert Steel Company, Cleveland, Ohio.



"All of us like our jobs made easy. It's been easy to sell and install Viking Blower packages. Now you're making it even easier. Takes only one hand to tighten the motor to the mounting bracket now. I'm all for it in both the Blower Packages I sell and the Blowers I have to install in manufacturer's furnaces and air conditioners. Hope they all choose Viking." So says John Donnelly of Donnelly Tanners, Cleveland, Ohio.

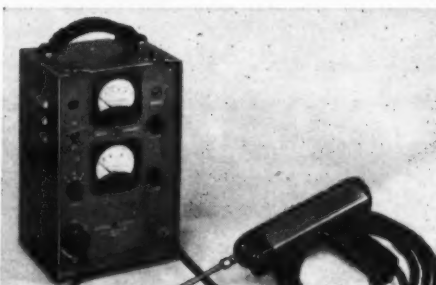
To Furnace and Air Conditioner Designers:

A request on your letterhead for Viking's "Blower Assembly Workbook" brings you all the information you need for ordering a sample blower for your unit. Write today.



AMERICA'S MOST SENSITIVE NOSE

DELIVERY FROM STOCK ON NEW UNITS AND REPAIR PARTS



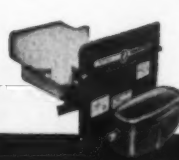
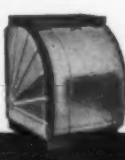
24-HOUR REPAIR SERVICE

GENERAL ELECTRIC'S new H-1 Leak Detector. Equipment for manufacturers and service shops—check for leaks of "Freon" in compressors, condensers, and piping systems on production line.

ELECTRONIC SUPPLY CORPORATION

94 HAMBLIN AVE. BATTLE CREEK, MICHIGAN

Viking
Air Conditioning
DIVISION OF THE NATIONAL RADIATOR COMPANY
1631 W. 106th Ave., Cleveland 2, Ohio



Other Viking Products
Dehumidifiers
Attic Fans
Window Fans

Servicing Heating, Cooling Systems--

(Concluded from preceding page) the combustion chamber beneath the flame will help although this cuts the burner efficiency."

Miles reminded the group that a pressure relief door should be provided on the furnace to take care of "puff-backs," which, he explained, was the trade jargon for "explosions."

Use of Pressure Relief Door

"Most cities require the removal of the door latch on furnaces and the substitution of springs to keep the door shut while still providing pressure relief."

Regarding gas-burning equipment, Miles commented that "installing and servicing gas equipment is easier because the fuel is already in a gaseous state and doesn't have to be atomized."

"The average household gas furnace burner is of the venturi type which induces air for combustion, so don't install a fan for forced draft."

Check Venturi Gas Nozzle

"Sometimes installers and servicemen fail to check the relationship between the venturi gas nozzle and the burner wall. If the orifice has been cocked to one side or otherwise improperly placed, it won't pull enough primary air for proper combustion."

Such a condition should be corrected. As for the proper amount

of air supply, Miles advised that this should be adjusted by first closing off the air entirely. This gives a yellow flame. Open the air supply to the point where the color of the flame just clears up, he said.

"For safety control, most manufacturers of gas equipment use a thermocouple setup. The thermocouple develops enough electricity from the gas flame to keep a solenoid valve open. When the flame fails, the thermocouple cools, the current drops, and the solenoid closes."

"The thermocouple should be located just beyond the cone in the center of the flame. Don't use pliers or a wrench on a thermocouple or you'll break the ceramic in it and ruin it," he warned.

Turning to the subject of residential cooling, Miles reminded the group of what he considers is the major difference between air conditioning and commercial refrigeration.

"In a conventional refrigerator, say a walk-in cooler, the refrigeration equipment, that is, the coil, is located in the room itself. With summer air conditioning, however, you place the equipment (the coil) in the basement and move air from the room to the equipment. If you don't transfer enough air, you won't maintain desired conditions in the room."

"So your first check in servicing residential air conditioning sys-

tems is to determine if you're getting enough air across the coil."

Plugged Filters Cause 95% of Service Calls

"At least 95% of service calls on air conditioning are due to plugged filters. Dirty filters will cause the air quantity to drop off."

"It's very important, too, to check the temperature difference across the coil. This should be 20° to 25° between the air entering and the air leaving the coil in the Middle West territory. This temperature difference will take care of both dry bulb and humidity. In the South a t.d. of 25° to 30° is used generally while in arid regions 10° to 15° will suffice."

"Most residential air conditioning jobs use a thermostatic expansion valve which regulates the refrigerant flow according to temperature difference, that is, superheat."

Regulate Back Pressure With Air Quantity

"You can't change the head pressure by adjusting the expansion valve. The only way to regulate the back pressure is to regulate the air quantity. But you shouldn't worry about back pressure, anyway, in domestic air conditioning if the job is operating okay," Miles said.

"In domestic air conditioning we don't care so much about the temperature as we do the humidity. Constant humidity in the home is more important than constant temperature. Don't oversize domestic equipment; if anything, undersize it slightly. We want the equipment to run all the time to keep the humidity constant, because a change in the humidity has more effect on the occupants than the amount of humidity."

'Hands Off' Expansion Valve

"Let the expansion valve alone on air conditioning systems as on any other refrigeration equipment. Yes, you can flood or starve the coil, but if you do, you'll disturb the balance of the job. Of course, when it gets old, the expansion valve may have to be replaced, but don't just assume that the valve is poorly adjusted."

"Another problem in residential air conditioning," Miles declared, "is refrigerant leaks, which are chiefly the result of damage during shipping. I've seen condensing units just tipped from the first floor into the basement, so check all new jobs carefully for leaks."

"How do you know if you've got enough refrigerant in a water-cooled job? First, shut off the water while letting the unit operate. Feel the receiver. You can determine the level of the refrigerant by the temperature of the receiver."

Questioned from the floor as to a possible solution for maintaining capacity of a residential system when the fan was speeded up to provide more air delivery upstairs, Miles suggested by-passing some of the air around the coil.

3 Limits of Fan Speed Up

He warned, however, that there are limits in speeding up fans.

"If you go too far, you will actually reduce the air quantity delivered by the fan. Also, remember that the fan horsepower requirements rise sharply with an increase in speed."

"You must remember that with domestic air conditioning operating costs are more important than in commercial air conditioning. Homeowners are very critical of power costs, so the installer and serviceman should make sure the job is operating at peak efficiency."

In answer to a question as to what problems might be encountered with add-on cooling units which have no blower but depend on the blower of the existing heating system, Miles offered the following rule-of-thumb for minimum fan size per horsepower of the cooling unit:

Cooling Unit	Fan Size (Mueller)	Fan Size (Standard)
2 hp.	11 in.	10 in.

3 hp.	13 in.	12 in.
5 hp.	15 in.	15 in.
7½ hp.	18 in.	18 in.

What about the future of air-cooled equipment? he was asked.

"They'll be the whole thing two or three years from now," Miles predicted. "The trend today is to remote condensing units or condensers because there just isn't enough water."

Commenting on a question about register location, Miles said, "On domestic air conditioning you can use any register location, but with floor or baseboard registers you have to direct the air upwards instead of across the room."

Rule of Thumb for Commercial Units

When the discussion veered to commercial air conditioning installations, Miles offered a rule-of-thumb load calculation method for such applications as restaurants or taverns which need considerable ventilation.

"With this method you operate on 100% fresh air and need an exhaust fan sized to remove three-fourths of the air brought in. You remove the heat from the outside air, which in these applications generally means less load than the inside load."

"You figure the cubic content of the space in feet and divide this by 10. This gives the amount of outside air required in c.f.m. The c.f.m. figure multiplied by one of the following factors gives the load in B.t.u. per hour. The factor for

78° wet-bulb design is 40; for 76° w.b., 39; for 75° w.b., 38; for 73° w.b., 36."

"How important is it to evacuate an air conditioning system before recharging when the unit is adequately protected by driers?" he was also asked.

"It is necessary to evacuate the system to remove air because air raises head pressures and therefore operating costs. Moisture and air in a system are harmful, even if the operating temperature is high enough to prevent freezing of the moisture at the expansion valve."

Scrap Charge If System Is Opened

"We suggest that when any work is done which involves opening up the system, the entire charge should be dumped, and the system evacuated so that you start from scratch again."

"Suppose," Miles was asked, "a customer just wants to air condition the first floor of a two-story home and the house has an open stairway. How do you calculate the load?"

"Figure the first floor load and then add 50%," Miles suggested. "How can you avoid sweating on basement ductwork?"

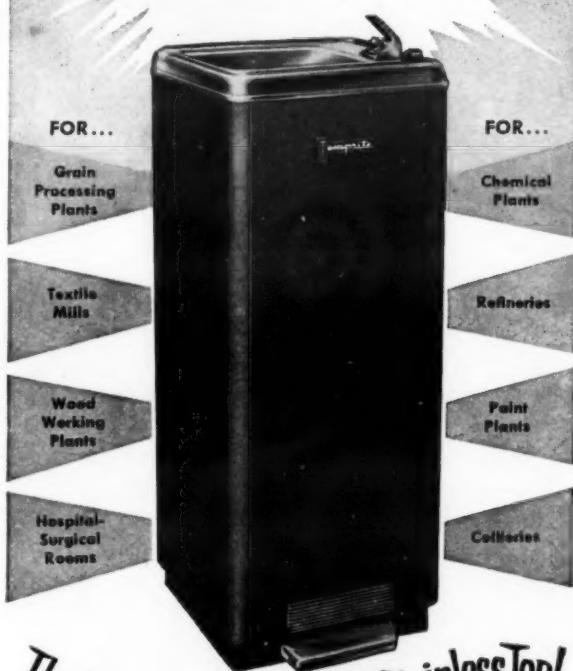
"If sweating occurs, the air is obviously too cold in most instances. You can reduce or eliminate sweating," he answered, "by installing a by-pass around the coil to raise the air temperature. When this is done you have to increase the air quantity."

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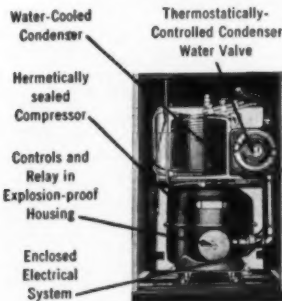
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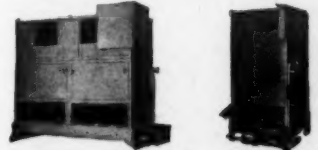
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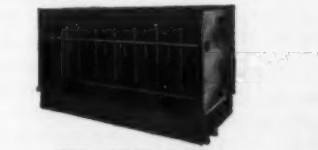
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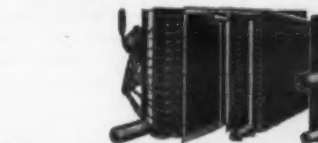
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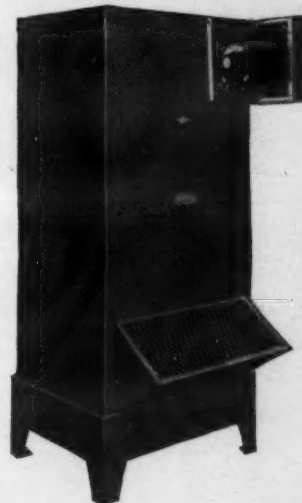


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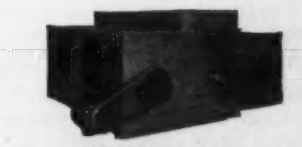
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About the Pictures

In gathering specifications data from manufacturers of room air conditioners, the NEWS requested photographs of a representative model in the 1954 line that would show clearly the air discharge section of the unit.

While perhaps not all of the pictures satisfy this intention completely, the editors believe that the presentation of the illustrations that were available will be of interest to the readers. The pictures point up the differences in design, styling, and air discharge arrangement of most of the room air conditioners on the market today.

Mitchell Export Manager To Visit Foreign Outlets

CHICAGO—Harry D. Friedman, export manager of Mitchell Mfg. Co., has left on a two-month visit with Mitchell distributors and dealers in 14 European and African countries.

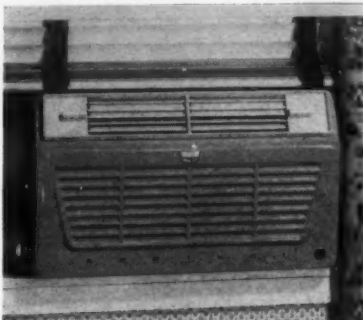
Friedman will work with distributors on special Mitchell promotions, which he believes have played an important part in creating a heavy demand for Mitchell units in foreign countries. Mitchell representatives have advertised consistently in local newspapers and magazines, it was pointed out.

LISTING 1954 Room Air Conditioner Models

(Listing Is by Trade Name Currently Used)

Admiral

Admiral Corp., 3800 Cortland St.,
Chicago 47



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
33D3	1/2	60-115	26 1/2 22 14 1/2	\$	No	\$199.95
50D5	1/2	60-115	26 1/2 22 14 1/2	\$	Yes	\$279.95
50D9	1/2	60-115	26 1/2 22 14 1/2	\$	Yes	\$289.95
75D5S	3/4	60-115	26 1/2 22 14 1/2	\$	Yes	\$299.95
75D5†	3/4	60-115	26 1/2 22 14 1/2	\$	Yes	\$379.95
75D7S	3/4	60-230	26 1/2 22 14 1/2	\$	Yes	\$299.95
75D7†	3/4	60-230	26 1/2 22 14 1/2	\$	Yes	\$379.95
75D8†	3/4	60-208	26 1/2 22 14 1/2	\$	Yes	\$379.95
75D9††	3/4	115	26 1/2 22 14 1/2	\$	Yes	\$419.95
75D11††	3/4	230	26 1/2 22 14 1/2	\$	Yes	\$419.95
100D7†	1	60-230	26 1/2 23 1/2 14 1/2	\$	Yes	\$449.95
100D8	1	60-208	26 1/2 23 1/2 14 1/2	\$	Yes	\$449.95
100D11†	1	230	26 1/2 23 1/2 14 1/2	\$	Yes	\$489.95

*Has built-in electric coil heater. †Has "comfortrol" thermostat. ††Has reverse cycle heating. ‡Flush with sill.

Alsco

Alsco Co., 260 S. Forge, Akron, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
L-75A	3/4	60-115	27 1/2 33 1/2 15 1/2	11 1/4	Yes	\$299.95

Amana

Amana Refrigeration, Inc.,
Amana, Iowa



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50A	1/2	60-115	25 35 15	6 1/2	Yes	\$329.50
75A	3/4	60-115/230	25 35 15	6 1/2	Yes	\$399.50
100A	1	60-230	25 35 15	6 1/2	Yes	\$469.50

Bellair

Packard-Bell Co.,
12333 W. Olympic Blvd.,
Los Angeles 64, Calif.

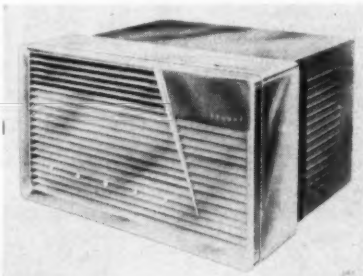


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
*7554D	3/4	60-115	Indoor—27 1/2 12 1/2 14 Outdoor—26 1/2 17 17 1/2	12 1/2	Yes	\$299.95
†7554CD	3/4	60-115	Indoor—27 1/2 12 1/2 14 Outdoor—26 1/2 17 17 1/2	12 1/2	Yes	\$399.95
†10054CD	1	60-230	Indoor—27 1/2 12 1/2 14 Outdoor—26 1/2 17 17 1/2	12 1/2	Yes	\$429.95

*Includes one-year warranty. †Includes five-year warranty. These units also have thermostats, which the 7554D does not have. Prices shown are mahogany. Oak and colonial are \$10.00 higher.

Bryant

Bryant Heater Div., 17825 St. Clair
Ave., Cleveland 10, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50-554	1/2	60-115	26 1/2 29 1/2 16	10 1/2	Yes	\$323.95
75A-554	3/4	60-115	26 1/2 29 1/2 16	10 1/2	Yes	\$369.95
75B-554	3/4	60-230	26 1/2 29 1/2 16	10 1/2	Yes	\$369.95
100-554	1	60-230	26 1/2 29 1/2 16	10 1/2	Yes	\$449.95

Burnham

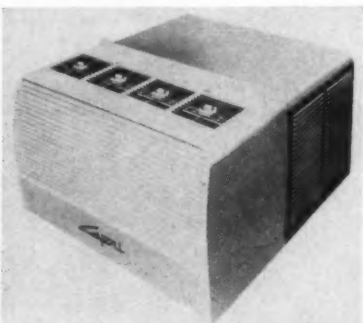
Burnham Corp.,
Box 351, Zanesville, Ohio



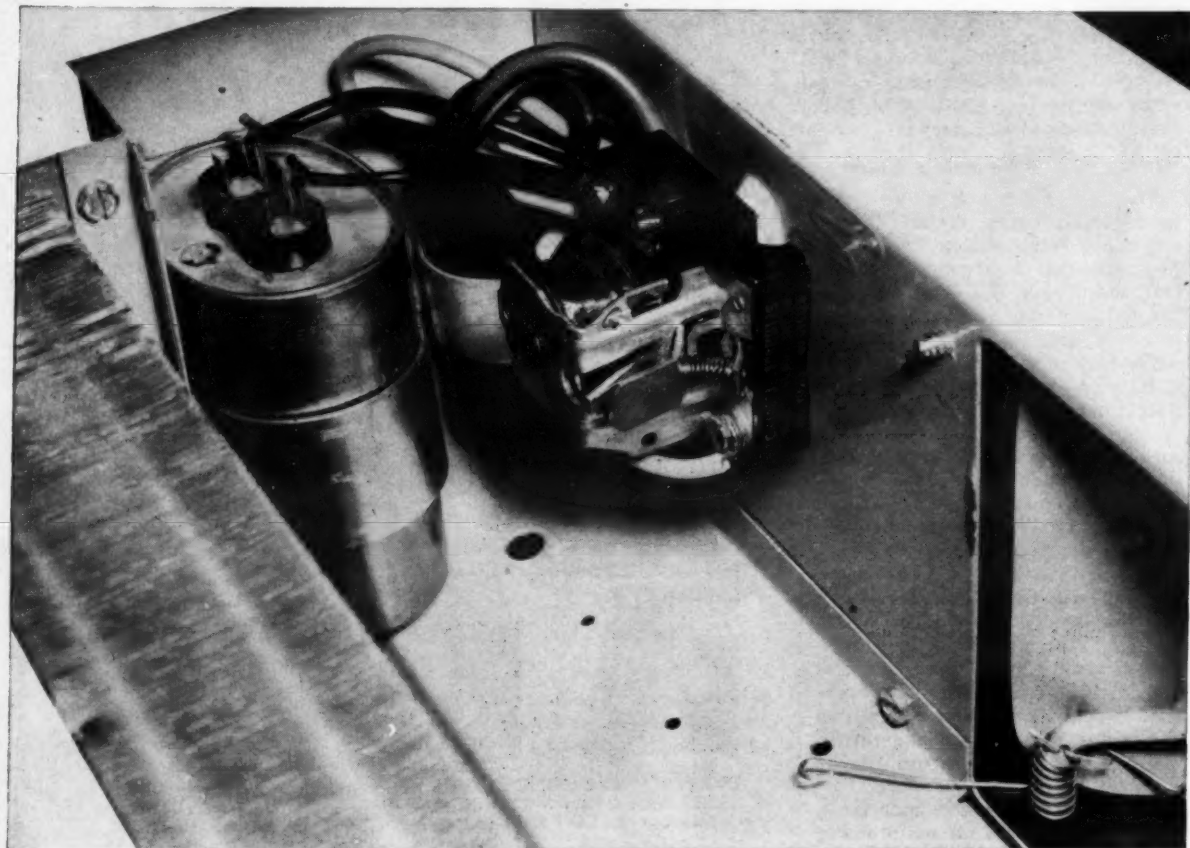
Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
BAC 4	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20 1/2	No	\$229.95
BAC 6	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20 1/2	No	\$319.95
BAC 8-2	3/4	60-115	25 1/2 28 1/2 14 1/2	8 1/2—20 1/2	No	\$374.95
BAC 8-3	3/4	60-230	25 1/2 28 1/2 14 1/2	8 1/2—20 1/2	No	\$381.95
BAC-10M	1	60-230	37 20 1/2 38	....	No	\$694.50
BAC-12M	1 1/2	60-230	37 20 1/2 38	....	No	\$884.50

Capri

Frigid, Inc., 128-168 Thirty Second St.,
Brooklyn 32, N. Y.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
500 D	1/2	50/60-115	26 1/2 16 1/2 30	12	Yes	\$249.95
7510 D	3/4	50/60-115	26 1/2 16 1/2 30	12	Yes	\$399.95
7510 D23	3/4	60-230	26 1/2 16 1/2 30	12	Yes	\$409.95
7510 D28	3/4	60-208	26 1/2 16 1/2 30	12	Yes	\$409.95
7500 S	3/4	50/60-115	26 1/2 16 1/2 30	12	Yes	\$339.95
7500 S23	3/4	60-230	26 1/2 16 1/2 30	12	Yes	\$349.95
7500 S28	3/4	60-208	26 1/2 16 1/2 30	12	Yes	\$349.95
1010 D	1	60-230	26 1/2 16 1/2 30	12	Yes	\$459.95
1010 D28	1	60-208	26 1/2 16 1/2 30	12	Yes	\$459.95



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Room Air Conditioner Models

Carrier

Carrier Corp., 300 S. Geddes St.,
Syracuse 1, New York



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
51Q1	1/2	60-115	24 28 12 1/2	9 1/2	No	\$229.00
51Q2	1/2	60-115	24 28 12 1/2	9 1/2	No	\$19.00
51Q3	3/4	60-115/208/230	26 32 15 1/2	7 1/2	No	\$39.00
51Q4	1	60-208/230	26 32 15 1/2	7 1/2	No	\$49.00

Chrysler Airtemp

Chrysler Airtemp, 1600 Webster St.,
Dayton, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
1650-2	1/2	60-115	27 32 15 1/2	15	Yes	\$292.09†
1750†	1/2	60-115	16 12 12 3/4	12 1/2	Yes	\$74.70†
1675-2	3/4	60-115	27 32 15 1/2	15	Yes	\$68.56†
1675-3*	3/4	60-115	27 32 15 1/2	15	Yes	\$12.59†
1600-2	1	60-230	27 32 15 1/2	15	Yes	\$39.21†
1600-3*	1	60-230	27 32 15 1/2	15	Yes	\$88.32†

*Custom models feature reverse cycle (heating). †For casement windows.
†Prices: Factory retail at factory.

Cool-A-Matic

Automatic Firing Corp., 4417 Oleatha
Ave., St. Louis 16, Mo.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RC-503	1/2	115	27 28 17 1/2	12 1/2	Yes	\$329.00
RC-753	3/4	115-230	27 28 17 1/2	12 1/2	Yes	\$79.00
RC-104	1	230	27 28 17 1/2	12 1/2	Yes	\$44.00

Coronado

General Appliance Corp.,
Greenville, Mich.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
44-154	1/2	60-110	26 30 16 1/2	13 1/2	No	\$279.95
44-155	3/4	60-110	26 30 16 1/2	13 1/2	Yes	\$39.95
44-156	1	60-220	26 30 16 1/2	13 1/2	Yes	\$99.95

Crosley

Appliance & Electronics Div., Avco
Mfg. Corp., 1329 Arlington, Cincinnati
25, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
ACF-33	1/2	60-115	22 26 13 1/2	13 1/2	Yes	\$229.95
ACF-50D*	1/2	60-115	22 26 13 1/2	13 1/2	Yes	\$19.95
ACF-75S	3/4	60-115/230	26 28 15 1/2	13	Yes	\$49.95
ACFT-75S	3/4	60-115/230	26 28 15 1/2	13	Yes	\$69.95
ACF-75D	3/4	60-115/230	26 28 15 1/2	13	Yes	\$89.95
ACFT-75D	3/4	60-115/230	26 28 15 1/2	13	Yes	\$19.95
ACFH-75D	3/4	60-115/230	26 28 15 1/2	13	Yes	\$39.95
ACF-100-33	1	60-230	26 28 15 1/2	13	Yes	\$49.95
ACFH-100	1	60-230	26 28 15 1/2	13	Yes	\$99.95

*Also available as ACF-50S without thermostat, with single-speed fan at \$279.95.

Coldspot

Sears Roebuck & Co., 925 S. Homan
Ave., Chicago, Illinois

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
244.5461130	1/2	60-115	22 26 14 1/2	12 1/2	Yes	\$200.00
244.5461120	1/2	60-115	22 26 14 1/2	12 1/2	Yes	\$250.00
244.5461340	3/4	60-115/230	26 28 14 1/2	12 1/2	Yes	\$300.00
244.546210	1	60-230	26 28 14 1/2	12 1/2	Yes	\$360.00

Dearborn

Tydel Mfg. Corp., 60 Broadway,
Brooklyn 11, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
DAC-50	1/2	60-115	26 27 15 1/2	6 1/2	Yes	\$290.00
DAC-75	3/4	60-115/230	26 27 15 1/2	6 1/2	Yes	\$370.00
DAC-100	1	60-230	26 27 15 1/2	6 1/2	Yes	\$450.00

Crane

Crane Co., 836 S. Michigan Ave.,
Chicago, Illinois

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
4AC50	1/2	60-115	26 29 16 1/2	10 1/2	Yes	\$319.95
4AC75	3/4	60-230	26 29 16 1/2	10 1/2	Yes	\$374.95
4AC100	1	60-230	26 29 16 1/2	10 1/2	Yes	\$419.95

Coolerator

Coolerator Co., P.O. Box 399,
Duluth 1, Minn.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AC 30	1/2	60-115	*23.5 30.2 14.8	11.2	No	...
AC 50	3/4	60-115	*23.5 30.2 14.8	11.2	Yes	...
AC 70	1	60-115	*23.5 30.2 14.8	11.2	No	...
AC 75	3/4	60-115	*23.5 30.2 14.8	11.2	Yes	...
AHC 75†	3/4	60-208/230	*23.5 30.2 14.8	11.2	Yes	...
AC 76†	3/4	60-208/230	*23.5 30.2 14.8	11.2	Yes	...
AC 77†	3/4	60-230	*23.5 30.2 14.8	11.2	Yes	...
AC 100	1	60-230	*27 34.6 16	13.4	Yes	...
AHC 100†	1	60-230	*28.2 34.6 16.5	13.4	Yes	...

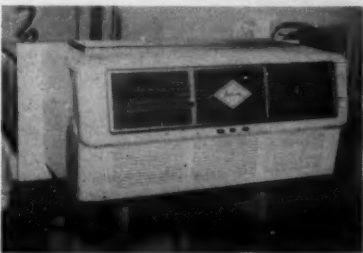
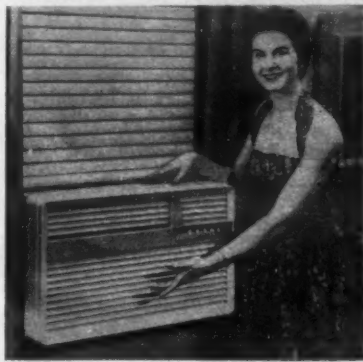
*Inside. †Outside.

Deering

Deering Air Cond. Co., 1069 Celestial
Ave., Cincinnati 2, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
CW-66-4	1/2	60-115	*16 1/2 12 13	12	No	\$299.95
CW-99-4	3/4	60-115/230	*14 1/2 10 1/2 23	14 1/2	Yes	\$379.95
CW-132-4	1	60-208	*14 1/2 10 1/2 19 1/2	14 1/2	Yes	...
		60-230	*30 13 14 1/2	14 1/2	Yes	\$459.50
		60-208	*14 1/2 10 1/2 23	14 1/2	Yes	...

*Inside. †Outside.



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ROOM CONDITIONERS



BASE... Here a single coat of Porcelain enamel assures lifetime protection against rust and corrosion.

WEATHERHOOD... another place for Porcelain enamel. Decorative, highly weather resistant, easily cleaned, and a permanent finish.

Rust and corrosion are stopped cold by a single coating of Porcelain enamel—even when metal surfaces are exposed to the weather the year around, as often happens with ROOM CONDITIONERS.

If you have had any experience with rust, you know what a "headache" it can be... possibly also a deterrent to future sales. Naturally, some areas are worse than others, especially those where salt-laden moisture (or minute acid particles) in the air quickly plays havoc with ordinary materials and finishes.

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Ask your manufacturer about this if "rust stains" are getting you down. Or write us direct!

PORCELAIN ENAMEL
is a "natural" for
ROOM CONDITIONERS

Only Porcelain enamel, the fused-in finish, gives you all these advantages:

1. Permanent, handsome appearance
2. Rust and corrosion resistance
3. High alkali and acid resistance
4. Easy cleaning and low maintenance
5. Long wearing, tough, durable
6. High heat resistance
7. Wide consumer acceptance



FERRO CORPORATION

Porcelain Enamel Division

4150 EAST 56TH STREET • CLEVELAND 5, OHIO

About the Pictures

In gathering specifications data from manufacturers of room air conditioners, the NEWS requested photographs of a representative model in the 1954 line that would show clearly the air discharge section of the unit.

While perhaps not all of the pictures satisfy this intention completely, the editors believe that the presentation of the illustrations that were available will be of interest to the readers. The pictures point up the differences in design, styling, and air discharge arrangement of most of the room air conditioners on the market today.

Mitchell Export Manager To Visit Foreign Outlets

CHICAGO—Harry D. Friedman, export manager of Mitchell Mfg. Co., has left on a two-month visit with Mitchell distributors and dealers in 14 European and African countries.

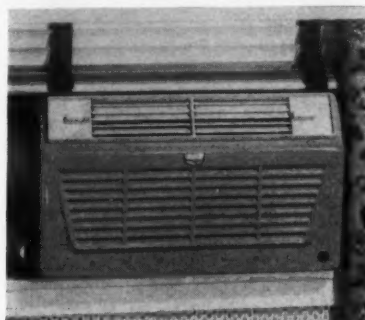
Friedman will work with distributors on special Mitchell promotions, which he believes have played an important part in creating a heavy demand for Mitchell units in foreign countries. Mitchell representatives have advertised consistently in local newspapers and magazines, it was pointed out.

LISTING 1954 Room Air Conditioner Models

(Listing Is by Trade Name Currently Used)

Admiral

Admiral Corp., 3800 Cortland St.,
Chicago 47



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
33D3	1/2	60-115	26 1/2 22 14 1/2	8	No	\$199.95
50D5	1/2	60-115	26 1/2 22 14 1/2	8	Yes	\$279.95
50D9*	1/2	60-115	26 1/2 22 14 1/2	8	Yes	\$289.95
75D5S	3/4	60-115	26 1/2 22 14 1/2	8	Yes	\$299.95
75D5†	3/4	60-115	26 1/2 22 14 1/2	8	Yes	\$379.95
75D7S	3/4	60-230	26 1/2 22 14 1/2	8	Yes	\$299.95
75D7†	3/4	60-230	26 1/2 22 14 1/2	8	Yes	\$379.95
75D8†	3/4	60-208	26 1/2 22 14 1/2	8	Yes	\$379.95
75D9†	3/4	115	26 1/2 22 14 1/2	8	Yes	\$419.95
75D11†	3/4	230	26 1/2 22 14 1/2	8	Yes	\$419.95
100D7†	1	60-230	26 1/2 23 1/2 14 1/2	8	Yes	\$449.95
100D8	1	60-208	26 1/2 23 1/2 14 1/2	8	Yes	\$449.95
100D11†	1	230	26 1/2 23 1/2 14 1/2	8	Yes	\$489.95

*Has built-in electric coil heater. †Has "comfortrol" thermostat. ‡Has reverse cycle heating. §Flush with sill.

Alsco

Alsco Co., 260 S. Forge, Akron, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
L-75A	3/4	60-115	27 1/2 33 1/2 15 1/2	11 1/4	Yes	\$299.95

Amana

Amana Refrigeration, Inc.,
Amana, Iowa



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50A	1/2	60-115	25 35 15	6 1/2	Yes	\$329.50
75A	3/4	60-115/230	25 35 15	6 1/2	Yes	\$399.50
100A	1	60-230	25 35 15	6 1/2	Yes	\$469.50

Bellair

Packard-Bell Co.,
12333 W. Olympic Blvd.,
Los Angeles 64, Calif.

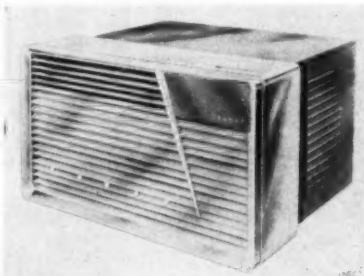


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
*7554D	3/4	60-115	Indoor—27 1/2 12 1/2 14 Outdoor—26 3/4 17 17 1/4	12 3/4	Yes	\$299.95
†7554CD	3/4	60-115	Indoor—27 1/2 12 1/2 14 Outdoor—26 3/4 17 17 1/4	12 3/4	Yes	\$399.95
‡10054CD	1	60-230	Indoor—27 1/2 12 1/2 14 Outdoor—26 3/4 17 17 1/4	12 3/4	Yes	\$429.95

*Includes one-year warranty. †Includes five-year warranty. These units also have thermostats, which the 7554D does not have. Prices shown are mahogany. Oak and colonial are \$10.00 higher.

Bryant

Bryant Heater Div., 17823 St. Clair
Ave., Cleveland 10, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50-554	1/2	60-115	26 1/2 29 1/2 16	10 1/2	Yes	\$323.95
75A-554	3/4	60-115	26 1/2 29 1/2 16	10 1/2	Yes	\$369.95
75B-554	3/4	60-230	26 1/2 29 1/2 16	10 1/2	Yes	\$369.95
100-554	1	60-230	26 1/2 29 1/2 16	10 1/2	Yes	\$449.95

Burnham

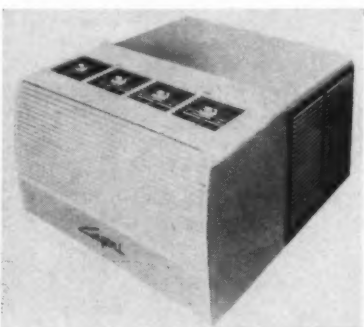
Burnham Corp.,
Box 351, Zanesville, Ohio



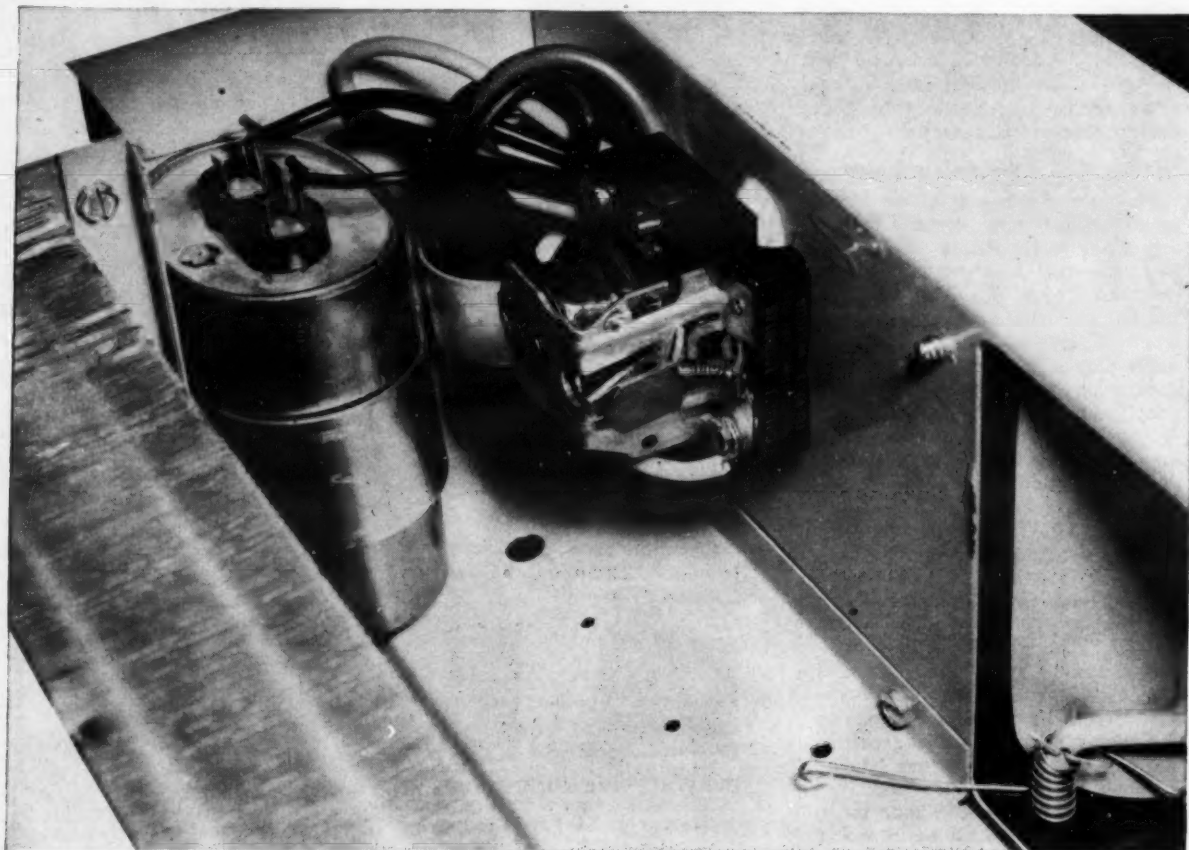
Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
BAC 4	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20 1/2	No	\$229.95
BAC 6	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20 1/2	No	\$319.95
BAC 8-2	3/4	60-115	25 1/2 28 1/2 14 1/2	8 1/2—20 1/2	No	\$374.95
BAC 8-3	3/4	60-230	25 1/2 28 1/2 14 1/2	8 1/2—20 1/2	No	\$381.95
BAC-10M	1	60-230	37 20 1/2 38	.....	No	\$694.50
BAC-12M	1 1/2	60-230	37 20 1/2 38	.....	No	\$884.50

Capri

Frigid, Inc., 128-168 Thirty Second St.,
Brooklyn 32, N. Y.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
500 D	1/2	50/60-115	26 1/2 16 1/2 30	12	Yes	\$249.95
7510 D	1/2	50/60-115	26 1/2 16 1/2 30	12	Yes	\$399.95
7510 D23	3/4	60-230	26 1/2 16 1/2 30	12	Yes	\$409.95
7510 D28	3/4	60-208	26 1/2 16 1/2 30	12	Yes	\$409.95
7500 S	3/4	50/60-115	26 1/2 16 1/2 30	12	Yes	\$339.95
7500 S23	3/4	60-230	26 1/2 16 1/2 30	12	Yes	\$349.95
7500 S28	3/4	60-208	26 1/2 16 1/2 30	12	Yes	\$349.95
1010 D	1	60-230	26 1/2 16 1/2 30	12	Yes	\$459.95
1010 D28	1	60-208	26 1/2 16 1/2 30	12	Yes	\$459.95



QUICK-CONNECT (SOLDERLESS) TERMINALS ON G-E DRAWN-OVAL CAPACITOR (LEFT) CUT ASSEMBLY TIME.

Versatile G-E Drawn-Oval Capacitors Cut Costs and Save Space in Air Conditioning Equipment

G-E Drawn-Oval Capacitors provide unsurpassed reliability combined with the important advantages of lower cost, smaller size and less weight in the air conditioning equipment you manufacture.

RATINGS range from 5 to 20 microfarads, 236 to 440 volts a-c. Choice of mounting arrangement makes G-E drawn ovals ideally suited for application in air conditioning equipment.

DOUBLE ROLLED SEAM attaches cover to drawn-steel case producing a lighter, yet stronger capacitor. Actual savings in size and weight vary with case style and rating but can amount to as much as 30%. Depending upon case style and quantity ordered, prices average 10 to 20% lower than for rectangular capacitors.

MOUNTING VERSATILITY is provided by choice of L-type or wrap-around brackets for upright or side mounting to suit individual requirements. Silicone bushings with phenolic cups provide hermetic sealing and maintain high insulation resistance even with continuous temperature variation. Two types of bushing terminals are available, the forked terminal or the quick-connect (solderless). Suitable protective rubber boots can be provided to enclose terminals.

FOR MORE INFORMATION on G-E Drawn-Oval Capacitors, their ratings, dimensions and prices, contact your local G-E Apparatus Sales Representative or write for Bulletin GEA-5895, General Electric Company, Section 442-20, Schenectady 5, New York.

You can put your confidence in—
GENERAL ELECTRIC

Room Air Conditioner Models

Carrier

Carrier Corp., 300 S. Geddes St.,
Syracuse 1, New York



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
51Q1	1/2	60-115	24 1/2 28 1/2 12 1/2	9 1/2	No	\$239.00
51Q2	1/2	60-115	24 1/2 28 1/2 12 1/2	9 1/2	No	319.00
51Q3	3/4	60-115/208/230	26 1/2 33 1/2 15 1/2	7 1/2	No	399.00
51Q4	1	60-208/230	26 1/2 33 1/2 15 1/2	7 1/2	No	459.00

Chrysler Airtemp

Chrysler Airtemp, 1600 Webster St.,
Dayton, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
1650-2	1/2	60-115	27 1/2 32 1/2 15	15	Yes	\$292.00†
1750†	1/2	60-115	16 1/2 12 1/2 36 1/2	12 1/2	Yes	374.70†
1675-2	3/4	60-115	27 1/2 32 1/2 15	15	Yes	368.56†
1675-3*	3/4	60-115	27 1/2 32 1/2 15	15	Yes	412.59†
1600-2	1	60-230	27 1/2 32 1/2 15	15	Yes	439.21†
1600-3*	1	60-230	27 1/2 32 1/2 15	15	Yes	488.32†

*Custom models feature reverse cycle (heating). †For casement windows.
†Prices: Factory retail at factory.

Cool-A-Matic

Automatic Firing Corp., 4417 Oleatha
Ave., St. Louis 16, Mo.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RC-503	1/2	115	27 28 1/2 17	12 1/2	Yes	\$329.00
RC-753	3/4	115-230	27 28 1/2 17	12 1/2	Yes	379.00
RC-104	1	230	27 28 1/2 17	12 1/2	Yes	444.00

Coronado

General Appliance Corp.,
Greenville, Mich.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
44-154	3/4	60-110	26 1/2 30 16 1/2	13 1/2	No	\$279.95
44-155	3/4	60-110	26 1/2 30 16 1/2	13 1/2	Yes	339.95
44-156	3/4	60-220	26 1/2 30 16 1/2	13 1/2	Yes	399.95

Crosley

Appliance & Electronics Div., Avco
Mfg. Corp., 1329 Arlington, Cincinnati
25, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
ACF-33	1/2	60-115	22 1/2 26 1/2 13 1/2	13 1/2	Yes	\$229.95
ACF-50D*	1/2	60-115	22 1/2 26 1/2 13 1/2	13 1/2	Yes	319.95
ACF-75S	3/4	60-115/230	26 1/2 28 1/2 15 1/2	13	Yes	349.95
ACFT-75S	3/4	60-115/230	26 1/2 28 1/2 15 1/2	13	Yes	369.95
ACF-75D	3/4	60-115/230	26 1/2 28 1/2 15 1/2	13	Yes	389.95
ACFT-75D	3/4	60-115/230	26 1/2 28 1/2 15 1/2	13	Yes	419.95
ACFH-75D	3/4	60-115/230	26 1/2 28 1/2 15 1/2	13	Yes	439.95
ACF-100-33	1	60-230	26 1/2 28 1/2 15 1/2	13	Yes	449.95
ACFH-100	1	60-230	26 1/2 28 1/2 15 1/2	13	Yes	499.95

*Also available as ACF-50S without thermostat, with single-speed fan at \$279.95.

Coldspot

Sears Roebuck & Co., 925 S. Homan
Ave., Chicago, Illinois

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
244.5461120	1/2	60-115	22 1/2 28 14	12 1/2	Yes	\$200.00
244.5461120	1/2	60-115	22 1/2 28 14	12 1/2	Yes	250.00
244.5461340	3/4	60-115	26 1/2 29 1/2 14 1/2	12 1/2	Yes	300.00
244.546210	1	60-230	26 1/2 29 1/2 14 1/2	12 1/2	Yes	360.00

Dearborn

Tydel Mfg. Corp., 60 Broadway,
Brooklyn 11, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
DAC-50	1/2	60-115	26 27 15 1/2	6 1/2	Yes	\$290.00
DAC-75	3/4	60-115/230	26 27 15 1/2	6 1/2	Yes	370.00
DAC-100	1	60-230	26 27 15 1/2	6 1/2	Yes	450.00

Crane

Crane Co., 836 S. Michigan Ave.,
Chicago, Illinois



Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
4AC50	1/2	60-115	26 1/2 29 1/2 16 1/2	10 1/2	Yes	\$319.95
4AC75	3/4	60-230	26 1/2 29 1/2 16 1/2	10 1/2	Yes	374.95
4AC100	1	60-230	26 1/2 29 1/2 16 1/2	10 1/2	Yes	419.95

Coolerator

Coolerator Co., P.O. Box 399,
Duluth 1, Minn.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AC 30	1/2	60-115	*23.5 30.2 14.8	11.2	No	....
			†24.6 30.2 15.3			
AC 50	3/4	60-115	*23.5 30.2 14.8	11.2	Yes	....
			†24.6 30.2 15.3			
AC 70	1	60-115	*23.5 30.2 14.8	11.2	No	....
			†24.6 30.2 15.3			
AC 75	3/4	60-115	*23.5 30.2 14.8	11.2	Yes	....
AHC 75†			†24.6 30.2 15.3			
AC 76†	3/4	60-208/230	*23.5 30.2 14.8	11.2	Yes	....
AC 77†			†24.6 30.2 15.3			
AC 100	1	60-230	*27 34.6 16	13.4	Yes	....
AHC 100†			†28.2 34.6 16.5			

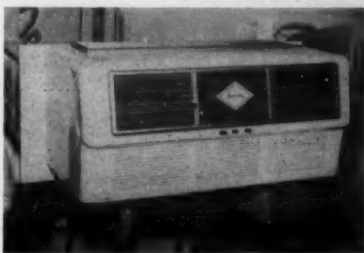
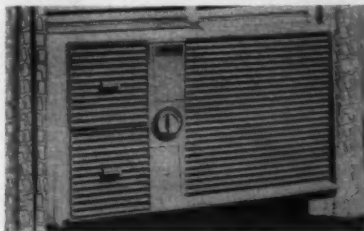
*Inside. †Outside.

Deering

Deering Air Cond. Co., 1069 Celestial
Ave., Cincinnati 2, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
CW-66-4	1/2	60-115	*16 1/2 12 13	12	No	\$299.95
			†14 1/2 10 1/2 23			
CW-99-4	3/4	60-115/230	*30 1/2 13 14 1/2	14 1/2	Yes	379.95
		60-208	†14 1/2 10 1/2 19 1/2	14 1/2	Yes	
CW-132-4	1	60-230	*30 1/2 13 14 1/2	14 1/2	Yes	459.50
		60-208	†14 1/2 10 1/2 23			

*Inside. †Outside.



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FERRO CORPORATION
Porcelain Enamel Division
4150 EAST 56TH STREET • CLEVELAND 5, OHIO

Room Air Conditioner Models

Deepfreeze

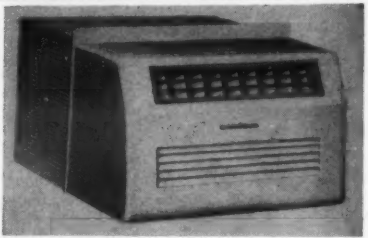
Deepfreeze Appliance Div.,
Motor Products Corp.,
2301 Davis St.,
North Chicago, Ill.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
DR-33	1/2	60-110	26 1/2 30 18 1/2	14	No	\$229.95
DR-75	3/4	60-110	26 1/2 30 18 1/2	14	No	299.95
DRT-76	3/4	60-110/220	26 1/2 30 18 1/2	14	Yes	369.95
DRT-100	1	60-220	26 1/2 30 18 1/2	14	Yes	429.95

Emerson-Electric

Emerson Electric Mfg. Co.,
3100 Florissant Ave., St. Louis 21, Mo.

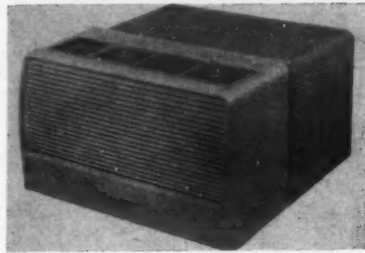


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RK50	1/2	60-115	26 1/2 30 16 1/2	14	Yes	\$339.95
RK75	3/4	60-115/230	26 1/2 30 16 1/2	14	Yes	389.95
RK100	1	60-230/208	26 1/2 36 16 1/2	14	Yes	489.95

Curtis

Curtis Mfg. Co., Refrigerating Machine Div., 1905 Kienlen Ave., St. Louis, Mo.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
CMA-6704	1/2	60-115	31 21 1/2 35 1/2	14	No	\$289.95
CMA-6734	1/2	60-230	31 21 1/2 35 1/2	14	No	292.00
CMA-6724	1/2	60-208	31 21 1/2 35 1/2	14	No	295.00
CMA-6754	1/2	60-115	31 21 1/2 35 1/2	14	Yes	379.95
CMA-6774	1/2	60-230	31 21 1/2 35 1/2	14	Yes	380.00
CMA-6784	1/2	60-208	31 21 1/2 35 1/2	14	Yes	384.00
CMA-1094	1	60-230	31 21 1/2 35 1/2	14	Yes	459.95
CMA-1084	1	60-208	31 21 1/2 35 1/2	14	Yes	468.00

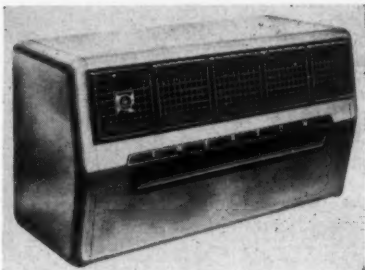


Emerson

Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York 11, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
ES41	1/2	60-115	24 20 15 1/2	12 1/2	Yes	\$199.95
ES31	1/2	60-115	24 20 15 1/2	12 1/2	Yes	209.95
E4A1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	239.95
E4B1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	249.95
E5A1	1/2	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	269.95
E5B1	1/2	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	289.95
E7A1	1/2	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	349.95
E7B1	1/2	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	369.95
E7A2	1/2	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	349.95
E7B2	1/2	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	369.95
E7A8	1/2	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	359.95
E7B8	1/2	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	379.95
E10A2	1	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	419.95
E10B2	1	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	439.95
E10A8	1	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	429.95
E10B8	1	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	449.95

A—Standard, B—Deluxe.



Fedders

Fedders-Quigan Corp., Buffalo 7, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
44	1/2	60-115	23 1/2 27 1/2 14 1/2	11	Yes	\$229.95
45	1/2	60-115	23 1/2 27 1/2 14 1/2	11	Yes	279.95
46	1/2	60-115	23 1/2 27 1/2 14 1/2	11	Yes	319.95
48	3/4	60-115/208	27 1/2 27 1/2 17	13 1/2	Yes	349.95
49	1	60-115/208	27 1/2 27 1/2 17	13 1/2	Yes	389.95
49H	1	60-115/208	27 1/2 27 1/2 17	13 1/2	Yes	439.95
411S	1	60-208/230	27 1/2 27 1/2 17	13 1/2	Yes	419.95
411	1	60-208/230	27 1/2 27 1/2 17	13 1/2	Yes	449.95
411H	1	60-208/230	27 1/2 27 1/2 17	13 1/2	Yes	499.95
F410C	1	60-230	37 1/2 21 1/2 39 1/2	....	Yes	714.95
F410D	1	60-230	37 1/2 21 1/2 39 1/2	....	Yes	730.95
F415C	1 1/2	60-230	37 1/2 21 1/2 39 1/2	....	Yes	889.95
F415D	1 1/2	60-230	37 1/2 21 1/2 39 1/2	....	Yes	906.95



I like to trade here! Your frozen food packages are always perfect!

My sales are growing by leaps and bounds—thanks to Tyler!

*Speed up sales
in the small store!*



Unit or continuous installations

New TYLER SELF-CONTAINED FROZEN FOOD DISPLAY CASES boost profits with fast, self-service sales... rapid turnover... greater volume... lower operating costs!

Brand new modern styling. Spotlights merchandise! Easily installed. Keeps frozen foods and ice cream hard as a rock! Tyler complete automatic defrost. Many more Tyler Advanced Design features!

Available self-contained or remote; top display and double-duty; with or without superstructures. Get more data on the complete Tyler line of frozen food merchandising equipment: space-saving, Sectional Storage Freezers; supermarket type Walk-In Storage Freezers; new easy-see, easy-bend, easy-reach Frozen Food Sales-Cases! **TYLER REFRIGERATION CORPORATION, NILES, MICH.**

TYLER — Most complete line!
— Better values, easier sales!
— Prospects everywhere!

In Canada—write Tyler Refrigeration, 128 Avenue Road, Toronto, Ontario

TYLER REFRIGERATION CORPORATION, Dept. R-4, Niles, Michigan
Rush data on new Tyler ☐ Self-contained Frozen Food Cases ☐ Sectional Storage Freezers ☐ Walk-In Storage Freezers ☐ Frozen Food Sales-Cases.

NAME _____
ADDRESS _____

TYLER WALK-IN FREEZERS provide adequate storage!



FloatingAir

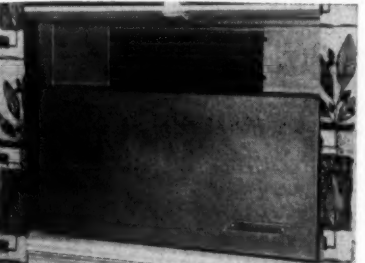
Ed Friedrich, Inc.,
San Antonio 3, Texas



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
W751S	1/2	60-115	26 1/2 15 1/2 31 1/2	9 1/2	Yes	\$369.95
W752S	3/4	60-230	26 1/2 15 1/2 31 1/2	9 1/2	Yes	369.95
W1002S	1	60-230	26 1/2 15 1/2 31 1/2	9 1/2	Yes	429.95
W1003S	1	60-208	26 1/2 15 1/2 31 1/2	9 1/2	Yes	429.95

Forston & Lincoln

Forston Co., 1400 Conti St.,
Houston, Texas



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
F754-L	1/2	60-115/230	26 30 15 13	13	Yes	\$359.50
F754-T	1/2	60-115/230	26 30 15 13	13	Yes	369.50
F104-L	1	60-230	26 30 15 13	13	Yes	399.50
F104-T	1	60-230	26 30 15 13	13	Yes	409.50
104-SP	1	60-230	26 30 15 13	13	Yes	299.50
104-TD	1	60-230	26 27 18	....	Yes	409.50
F204-T	2	60-230	27 42 19	15	Yes	759.50

Fresh'nd-Aire

Fresh'nd-Aire Co., Div. of Cory Corp.,
221 N. LaSalle St., Chicago 1, Ill.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
A412/115	1/2	60-115	25 30 15	8	Yes	\$329.95
A434/115	3/4	60-115	25 30 15	8	Yes	399.95
A434/230	3/4	60-230	25 30 15	8	Yes	399.95
A434/208	3/4	60-208	25 30 15	8	Yes	409.95
A410/230	1	60-230	25 33 15	8	Yes	459.95
A410/208	1	60-208	25 33 15	8	Yes	469.95

Room Air Conditioner Models

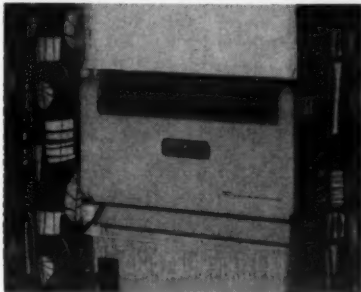
Firestone

Firestone Tire & Rubber Co.,
Akron, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
5-G-167	1/2	60-115/230	26 1/2 30 16 1/2	14	Yes	\$329.95
5-G-169	1	60-208/230	26 1/2 30 16 1/2	14	Yes	399.95

Frigidaire

Frigidaire Div., General Motors Corp.,
300 Taylor St., Dayton 1, Ohio

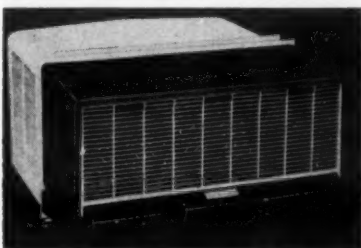


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
ART-33	1/2	60-115	22 1/2 30 16 1/2	7-13	Yes	\$229.95
ART-50	1/2	60-115	22 1/2 30 16 1/2	7-13	Yes	299.95
ART-75	3/4	60-115/208	28 1/2 31 1/2 16 1/2	7-13	Yes	359.95
ART-100	1	60-115/208 60-230	28 1/2 31 1/2 16 1/2	7-13	Yes	419.95

All models available for 50 cycle operation. All models may be mounted "flush with drapes" or conventional.

General Electric

General Electric Co., Appliance Park,
Building #4 - 242-E, Louisville, Ky.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
R-20	1/2	60-115	25 1/2 31 1/2 13 1/2	13 1/2	No	\$229.95
R-32	1/2	60-115	25 1/2 31 1/2 13 1/2	13 1/2	Yes	319.95
R-52	3/4	60-115/208	25 1/2 31 1/2 13 1/2	13 1/2	Yes	379.95
R-53	3/4	60-230	25 1/2 31 1/2 13 1/2	13 1/2	Yes	419.95
R-72	1	60-208/230	25 1/2 32 1/2 14 1/2	14 1/2	Yes	449.95

Gibson

Gibson Refrigerator Co.,
Greenville, Mich.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
GBC 3311	1/2	60-115	26 1/2 30 16 1/2	13 1/2	No	\$229.95
GAC 5011	1/2	60-115	26 1/2 30 16 1/2	13 1/2	Yes	319.95
GAC 7711	3/4	60-115	26 1/2 30 16 1/2	13 1/2	No	289.95
GAC 7721	3/4	60-230	26 1/2 30 16 1/2	13 1/2	No	289.95
GAH 7511	3/4	60-115	26 1/2 30 16 1/2	13 1/2	Yes	379.95
GAH 7611	3/4	60-115	26 1/2 30 16 1/2	13 1/2	Yes	379.95
GAH 7521	3/4	60-230	26 1/2 30 16 1/2	13 1/2	Yes	389.95
GAH 7581	3/4	60-208	26 1/2 30 16 1/2	13 1/2	Yes	389.95
GAC-1021	1	60-230	26 1/2 30 16 1/2	13 1/2	Yes	449.95

Hunter

Hunter Fan &
Ventilating Co.,
400 S. Front St.,
Memphis, Tenn.

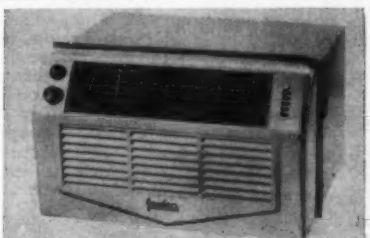


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
UC-50	1/2	60-115	26 1/2 29 1/2 16 1/2	12 1/4	Yes	\$319.50
60-CT*	1/2	60-115	13 8 14	8	Yes	319.50
UC-75	3/4	60-115/208	26 1/2 29 1/2 16 1/2	12 1/4	Yes	379.50
UC-100	1	60-230/208	26 1/2 29 1/2 16 1/2	12 1/4	Yes	439.50

*For casement windows.

Jordon

Jordon Refrigerator Co., Inc.,
58th St. & Grays Ave.,
Philadelphia 43, Pa.

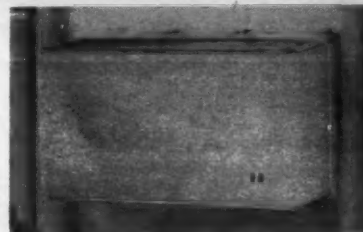


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
J50	1/2	60-115	26 1/2 22 15 1/2	8	Yes	....
J75	3/4	60-115/230	26 1/2 22 15 1/2	8	Yes	....
J100	1	60-230	26 1/2 25 15 1/2	8	Yes	....

International Harvester

International Harvester Co., 180 N.
Michigan Ave., Chicago 1, Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
M-350-S	1/2	60-115	22 1/2 26 12 1/2	12 1/2	No	\$219.95
M-350-D	1/2	60-115	22 1/2 26 12 1/2	12 1/2	Yes	239.95
M-500-D	1/2	60-115	26 1/2 31 1/2 15 1/2	14 1/2	Yes	319.95
M-750-D	3/4	60-115	26 1/2 31 1/2 15 1/2	14 1/2	Yes	389.95
M-751-D	3/4	60-230	26 1/2 31 1/2 15 1/2	14 1/2	Yes	389.95
M-752-D	3/4	60-208	26 1/2 31 1/2 15 1/2	14 1/2	Yes	389.95
M-1000-D	1	60-230	26 1/2 31 1/2 15 1/2	14 1/2	Yes	449.95
M-1001-D	1	60-208	26 1/2 31 1/2 15 1/2	14 1/2	Yes	449.95



Kelvinator

Nash-Kelvinator Corp.,
14250 Plymouth Rd., Detroit 22, Mich.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RAC-64	1/2	60-115	23 1/2 28 1/2 13 1/2	9 1/2	Yes	\$319.95
RAC-84S	3/4	60-115/230	27 1/2 32 15 1/2	10 1/2	Yes	369.95
RAC-84D	3/4	60-230	27 1/2 32 15 1/2	10 1/2	Yes	399.95
RAC-104S	1	60-230	27 1/2 32 15 1/2	10 1/2	Yes	419.95
RAC-104D	1	60-230	27 1/2 32 15 1/2	10 1/2	Yes	449.95
RAC-154D	1 1/2	60-230	30 1/2 38 1/2 18 1/2	16 1/2	Yes	559.95



Majestic

Majestic Major Appliance Corp.,
Box 983, Lima, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
ACS-1004	1	60-230	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
ACS-1004-T	1	60-230	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
MAC-1004	1	60-230	25 1/2 29 1/2 15 1/2	12 1/2	Yes	\$429.95
ACS-754	3/4	60-115	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
ACS-754-T	3/4	60-115	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
MAC-754	3/4	60-115	25 1/2 29 1/2 15 1/2	12 1/2	Yes	369.95
MAC-754A	3/4	60-230	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
MAC-504	3/4	60-115	25 1/2 29 1/2 15 1/2	12 1/2	Yes	299.95
MAC-100954	1	60-208	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
MAC-75954	3/4	60-208	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
ACS-75954	3/4	60-208	25 1/2 29 1/2 15 1/2	12 1/2	Yes	....
MAC-604-C	1/2	60-115	19 1/2 25 1/2 8	No	No	299.95

ACS-1004-T, ACS-754-T equipped with thermostat.



How do you sell refrigeration
to the prospect who says . . .
"I JUST CAN'T AFFORD IT"

Here's how!



METER-MATIC

COIN METER
REFRIGERATION SALES PLAN

GET THE COMPLETE STORY

- FULL DETAILS . . . Specifications, prices, etc.
- METER PLAN BROCHURE . . . to help you sell
- FREE SELF-MAILERS . . . for mailing to prospects

MAIL THIS COUPON NOW!

INTERNATIONAL REGISTER COMPANY
2626 W. Washington Boulevard, Chicago 12, Illinois

Send me Meter-Matic Sales Kit No. 44R. Be sure to include a free supply of 25 self-mailers for mailing to my prospects.

Company _____
My Name _____
Address _____
City _____ Zone _____ State _____

Room Air Conditioner Models

Kauffman

Kauffman Air Conditioning Co.,
4505 Olive St., St. Louis, Mo.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
Y	1/2	50/60-110/230	27 30 14	13	Yes	\$329-\$339
		115 d.c.				385
		230 d.c.				410
X	3/4	50/60-110/230	27 30 14	13	Yes	390-410
		115 d.c.				485
		230 d.c.				508
J	1	50/60-230	27 30 14	13	Yes	459-469
K	1 1/2	60-230	27 32 15	13	Yes	560
W	3/4	50/60-110/230	33 36 17	...	Yes	597-631
		115 d.c.				797
		230 d.c.				808
A	1	50/60-230	37 36 20	...	Yes	672-687
		115 d.c.				792
		230 d.c.				803
B	1 1/2	50/60-230	37 36 20	...	Yes	862-877
		115 d.c.				1,080
		230 d.c.				1,097
C	2	50/60-230	40 36 20	...	Yes	987-999
		115 d.c.				1,118
		220 d.c.				1,198

King

King Refrigerator Corp.,
76-02 Woodhaven Blvd., Glendale, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
K500	1/2	60-115	26 1/2 23 15 1/2	*	Yes	\$279.95
K750	3/4	60-115/230	26 1/2 23 15 1/2	*	Yes	339.95
		60-208				
K750T	3/4	60-115/230	26 1/2 23 15 1/2	*	Yes	349.95
		60-208				
K1000T	1	60-230	26 1/2 25 15 1/2	*	Yes	399.95

*Flush with sill. T—with thermostat.

Lipman

Lipman Div., Yates American Mach.
Co., 126 E. Shirland Ave., So. Beloit,
Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
L-73	3/4	60-110/220	29 1/2 29 1/2 16 1/2	12 1/2	...	...

Redmond

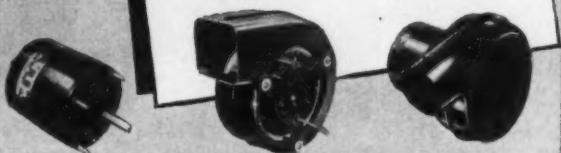
THE BIG NAME
IN SMALL MOTORS
Offers Manufacturers—

The latest developments
in electric motor design.
Smooth-running motors
built for long life... with
outstanding Tri-Flux and
Uni-Cast features.

A wide selection of motors
in sizes from 1/500 to 1/6
h.p., and blowers from 50
to 280 CFM.

25 years of experience,
specializing in efficient
motor design while making
no end product to compete
with its customers.

Let a Redmond Sales Engi-
neer help you select the
right motor for your appli-
cation. Write today for
information.



25th
Anniversary

Redmond

COMPANY, INC.
OWOSSO, MICHIGAN

Western Area Office: 1260 So. Boyle Ave., Los Angeles, Calif.

Lombard

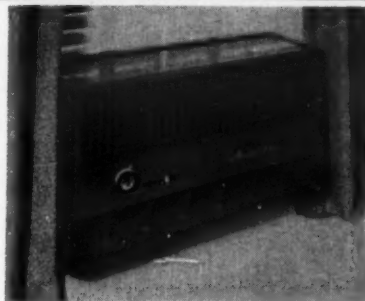
Lombard Mfg. Co., 25 Oak Hill Ave.,
Youngstown 9, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
L-75-A1	3/4	60-115	27 1/2 33 1/2 15 1/2	11 1/2	Yes	\$359.50
L-75-A2	3/4	60-220	27 1/2 33 1/2 15 1/2	11 1/2	Yes	361.50

Magic Chef

Magic Chef Inc.,
1641 S. Kingshighway,
St. Louis 10, Mo.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RC504-112	1/2	60-115	27 29 1/2 15	9	Yes	\$329.50
RC754-112	3/4	60-115	27 29 1/2 15	9	Yes	389.50
RC754-233	3/4	60-230	27 29 1/2 15	9	Yes	389.50
RC104-233	1	60-230	27 29 1/2 15	9	Yes	459.50



Marquette

Marquette Appliances, Inc., 307 E.
Hennepin Ave., Minneapolis, Minn.

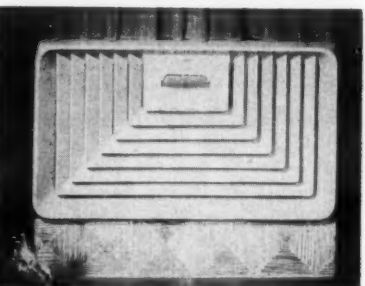
Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
M501	1/2	50/60-115	27 31 14 1/2	10 1/2	No	\$329.95
M501A	1/2	50/60-115	27 31 14 1/2	10 1/2	No	329.95
M751	3/4	50/60-115	27 31 14 1/2	10 1/2	No	379.95
M751A	3/4	50/60-115	27 31 14 1/2	10 1/2	No	389.95
MT751	3/4	50/60-115	27 31 14 1/2	10 1/2	No	389.95
MT751A	3/4	50/60-115	27 31 14 1/2	10 1/2	No	389.95
M752	3/4	50/60-220	27 31 14 1/2	10 1/2	No	389.95
MT752	3/4	50/60-220	27 31 14 1/2	10 1/2	No	389.95
MT752A	3/4	50/60-220	27 31 14 1/2	10 1/2	No	389.95
MT1002	1	50/60-220	27 31 14 1/2	10 1/2	No	459.95



Mitchell

Mitchell Mfg. Co., 2525 Clybourn Ave.,
Chicago 14, Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
M-134	1/2	115	25 1/2 25 1/2 14 1/2	4 1/2	Yes	\$229.95
M-124	1/2	115	25 1/2 25 1/2 14 1/2	4 1/2	Yes	279.95
M-344	3/4	115	25 1/2 25 1/2 14 1/2	4 1/2	Yes	379.95
M-2304	3/4	230	25 1/2 25 1/2 14 1/2	4 1/2	Yes	389.95
M-2084	3/4	208	25 1/2 25 1/2 14 1/2	4 1/2	Yes	399.95
M-1004	1	230	26 1/2 16 1/2 14 1/2	12 1/2	Yes	449.95
M-12084	1	208	26 1/2 16 1/2 14 1/2	12 1/2	Yes	459.95
M-1244	1 1/2	230	26 1/2 16 1/2 14 1/2	12 1/2	Yes	550.00
M-244	3/4	115	26 1/2 16 1/2 14 1/2	13 1/2	Yes	299.95
M-2344	3/4	230	26 1/2 16 1/2 14 1/2	13 1/2	Yes	309.95



Mueller Climatrol

Mueller Div. of Worthington Corp.,
2005 W. Oklahoma Ave.,
Milwaukee 15, Wis.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
910-75	3/4	60-230	29 1/2 15 28	10 1/2	Yes	...
910-100	1	60-230	29 1/2 15 28	10 1/2	Yes	...



National

National Steel Construction Co., Inc.,
301 Water St., Logansport, Ind.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
N-548	1/2	60-110	26 1/2 33 1/2 15 1/2	12 1/2	No	\$279.95
NT-504D	1/2	60-110	26 1/2 33 1/2 15 1/2	12 1/2	No	319.00
NT-754D	3/4	60-110/220	26 1/2 33 1/2 15 1/2	10 1/2	No	385.00
NT-104D	1	60-110/208	26 1/2 33 1/2 15 1/2	10 1/2	No	429.95

Noma All-Weather

Noma Lites, Inc., 55 W. 13th St.,
New York 11, N. Y.

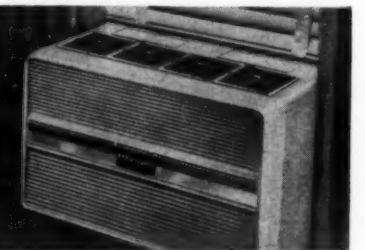
Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
75	3/4	60-115	26 1/2 28 1/2 12 1/2	14 1/2	Yes	\$399.95
100	1	60-230	26 1/2 28 1/2 14 1/2	14 1/2	Yes	449.95



Olympic FountainAire

Olympic Radio & Television, Inc.,
34-01 38th Ave., Long Island City 1,
N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	—Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
OW 475 S	3/4	60-115	26 1/2 30 16 1/2	13 1/2	No	\$299.95
OW 475 D	3/4	60-115	26 1/2 30 16 1/2	13 1/2	Yes	379.95
OW 475 D-230	3/4	60-230	26 1/2 30 16 1/2	13 1/2	Yes	389.95
OW 4100 D	1	60-230	26 1/2 30 16 1/2	13 1/2	Yes	469.95
OW 4100 D-208	1	60-208	26 1/2 30 16 1/2	13 1/2	Yes	479.95



how to make hot sales prospects out of cold customers...

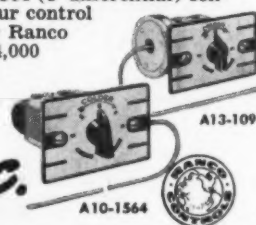


You'll melt sales resistance in a hurry with Ranco's new window air conditioner controls... just the ticket for modernizing old-fashioned window air conditioners not equipped with controls.

Offices and homes both offer you tremendous sales possibilities. These new controls prevent over-cooling... hold down humidity... maintain a "just right" indoor climate day and night. Get your share of this extra modernization business with Ranco's new A13-109 (3" differential), or A10-1564 (5" differential) control. Remember—whatever your control problem—it pays to see your Ranco wholesaler first. He has over 4,000 replacements—far more than available from any other source!

Ranco Inc.

COLUMBUS 1, OHIO



WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Perfection

Perfection Stove Co.,
7609 Platt Ave., Cleveland 4, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
A50A	1/2	60-115	28 30 16	13 1/2	Yes	\$289.95
A75A	3/4	60-115	28 30 16	13 1/2	Yes	389.95
A75B	3/4	60-230	28 30 16	13 1/2	Yes	399.95
A75C	3/4	60-208	28 30 16	13 1/2	Yes	409.95
A100B	1	60-230	28 30 16	13 1/2	Yes	469.95
A100C	1	60-208	28 30 16	13 1/2	Yes	479.95
A150B	1 1/2	60-230	28 30 16	13 1/2	Yes	569.95

Quiet Kool

Quiet Kool Corp., 46 Oliver St.,
Newark 5, N. J.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
H3A1 Std.	1/2	60-115	24 20 15 1/2	12 1/2	Yes	\$199.95
H3B1 Deluxe	1/2	60-115	24 20 15 1/2	12 1/2	Yes	209.95
H4A1 Std.	3/4	60-115	24 20 15 1/2	12 1/2	Yes	239.95
H4B1 Deluxe	3/4	60-115	24 20 15 1/2	12 1/2	Yes	249.95
*H5A1 Std.	1	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	269.95
*H7A1 Std.	3/4	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	339.95
*H7A2 Std.	3/4	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	339.95
*H7A3 Std.	3/4	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	349.95
*H10A2 Std.	1	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	419.95
*H10A3 Std.	1	60-208	26 1/2 28 1/2 15 1/2	12 1/2	Yes	439.95

*Also available in Deluxe models. All Deluxe models include heating and thermostat.

Philco

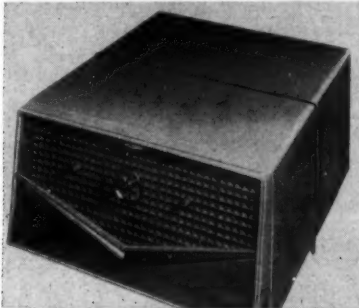
Philco Corp., Tioga & C Sts.,
Philadelphia 34, Pa.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
40K	1/2	60-115	26 1/2 27 1/2 13 1/2	12 1/2	No	\$199.95
61K	1/2	60-115	26 1/2 28 1/2 14 1/2	5 1/2—19 1/2	No	279.95
62-K	1/2	60-115	26 1/2 28 1/2 14 1/2	5 1/2—19 1/2	Yes	299.95
81KS1	3/4	60-115/208	26 1/2 30 1/2 15 1/2	6 1/2—21 1/2	Yes	339.95
84-K*	3/4	60-115/208	26 1/2 30 1/2 15 1/2	6 1/2—21 1/2	Yes	399.95
86-K†	3/4	60-115/208	26 1/2 30 1/2 15 1/2	6 1/2—21 1/2	Yes	429.95
101-KS	1	60-208/230	26 1/2 30 1/2 15 1/2	6 1/2—21 1/2	Yes	399.95
104-K*	1	60-208/230	27 1/2 32 1/2 14 1/2	18	Yes	449.95
106-K†	1	60-208/230	27 1/2 32 1/2 14 1/2	18	Yes	499.95
180-K	3/4	60-115/208	37 1/2 19 1/2 30 1/2	25	Yes	499.95
184-K*	3/4	60-115/208	37 1/2 19 1/2 30 1/2	25	Yes	519.95
1100-K	1	60-208/230	37 1/2 19 1/2 30 1/2	25	Yes	599.95
1104-K*	1	60-208/230	37 1/2 19 1/2 30 1/2	25	Yes	619.95
1204-K*	2	60-208/230	42 1/2 22 1/2 39 1/2	22 1/2	Yes	985.00

*With automatic temperature control. †With automatic temperature control and thermo-cool valve for cooling and heating. ‡Manufactured by York Corp. and Rex Mfg. Co.

Remington

Remington Air Conditioning Div.,
Auburn, N. Y.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
4C21	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20*	No	\$229.95
6C21	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20*	No	299.95
D6C21	1/2	60-115	23 1/2 28 13 1/2	8 1/2—20*	No	323.95
D6C21	3/4	60-115/230	27 31 14 1/2	15 1/2*	Yes	374.95
11C33	1	60-230/208	27 31 14 1/2	15 1/2*	Yes	419.95
10D-129	1	60-230/208	37 21 38	21*	No	694.50
H-12D-129	1 1/2	115/230 d.c.	37 21 38	21*	No	884.50

*From window line.

RCA

Radio Corp. of America,
Camden, N. J.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AC 433-D 21*	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	\$229.50
AC 433-D 23*	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	259.50
AC 450-S-D 21*	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	279.50
AC 450-S-D 23*	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	279.50
AC 450-D 21†	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	319.50
AC 450-D 23†	1/2	60-115	22 1/2 26 1/2 13 1/2	10 1/2	Yes	319.50
AC 475-S-D 21*	3/4	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	349.50
AC 475-S-D 23*	3/4	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	349.50
AC 475-S-D 33*	3/4	60-230	26 1/2 28 1/2 15 1/2	14 1/2	Yes	349.50
AC 475-S-D 53*	3/4	60-208	26 1/2 28 1/2 15 1/2	14 1/2	Yes	389.50
AC 475-D 21†	1/2	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	389.50
AC 475-D 23†	1/2	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	389.50
AC 475-D 33†	1/2	60-208	26 1/2 28 1/2 15 1/2	14 1/2	Yes	389.50
AC 475-D 53†	1/2	60-208	26 1/2 28 1/2 15 1/2	14 1/2	Yes	389.50
AC 475-D-DH 21†	1/2	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	459.50
AC 475-D-DH 23†	1/2	60-115	26 1/2 28 1/2 15 1/2	14 1/2	Yes	459.50
AC 475-D-DH 33†	1/2	60-230	26 1/2 28 1/2 15 1/2	14 1/2	Yes	459.50
AC 4100-S-D 33*	1	60-230	26 1/2 28 1/2 15 1/2	14 1/2	Yes	419.50
AC 4100-D 33†	1	60-230	26 1/2 28 1/2 15 1/2	14 1/2	Yes	449.50
AC 4100-D 53†	1	60-208	26 1/2 28 1/2 15 1/2	14 1/2	Yes	449.50
AC 4100-DH 33†	1	60-230	26 1/2 28 1/2 15 1/2	14 1/2	Yes	499.50

*Standard window units equipped with single-speed fans—no thermostats. †Deluxe window units equipped with thermostats and two-speed fans.

Voltage and connector designations: D 21-115/60/1-2 prong; D-23-115/60/1-3 prong; D-33-230/60/1-3 prong; D-53-208/60/1-3 prong; DH-Heat pump model.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AC 4100-CH-3*	1	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	\$599.50
AC 4100-CH-3†	1	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	679.50
AC 4100-CH-3‡	1	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	699.50
AC 4150-CH-3*	1 1/2	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	799.50
AC 4150-CH-3†	1 1/2	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	879.50
AC 4150-CH-3‡	1 1/2	60-230	37 20 1/2 38 1/2 20 1/2	20 1/2	No	899.50

*Steel. †Mahogany. ‡Blonde. Voltage and connector designations: CH-3 Console with heat strip and thermostat. 230/60/1.

Room Air Conditioner Models

Mobil-Aire

Union Asbestos & Rubber Co.,
332 S. Michigan Blvd., Chicago 4, Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AC-75W	3/4	60-115/230	18 17 28	13 1/2	No	\$399.50
AC-150W	2-3/4	60-115/230	36 17 28	13 1/2	No	799.50

These are mobile, water-cooled console units.

Rheem

Rheem Mfg. Co., 7600 S. Kedzie Ave.,
Chicago 29, Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
2051-50	1/2	60-115	26 1/2 16 1/2 14 1/2	13 1/2	Yes	\$279.95
2051-75	3/4	60-115	26 1/2 16 1/2 14 1/2	13 1/2	Yes	379.95
2051-75A	3/4	60-230	26 1/2 16 1/2 14 1/2	13 1/2	Yes	389.95
2051-100A	1	60-230	26 1/2 16 1/2 14 1/2	13 1/2	Yes	449.95

Robbins & Myers

Robbins & Myers, Inc., Fan Div.,
387 S. Front St., Memphis, Tenn.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
RUC-50	1/2	60-115	26 1/2 29 1/2 16 1/2	12 1/2	Yes	\$319.50
60-CT*	1/2	60-115	13 8 14	8	Yes	319.50
RUC-75	3/4	60-115/208	26 1/2 29 1/2 16 1/2	12 1/2	Yes	379.50
RUC-100	1	60-230/208	26 1/2 29 1/2 16 1/2	12 1/2	Yes	439.50

*For casement windows.

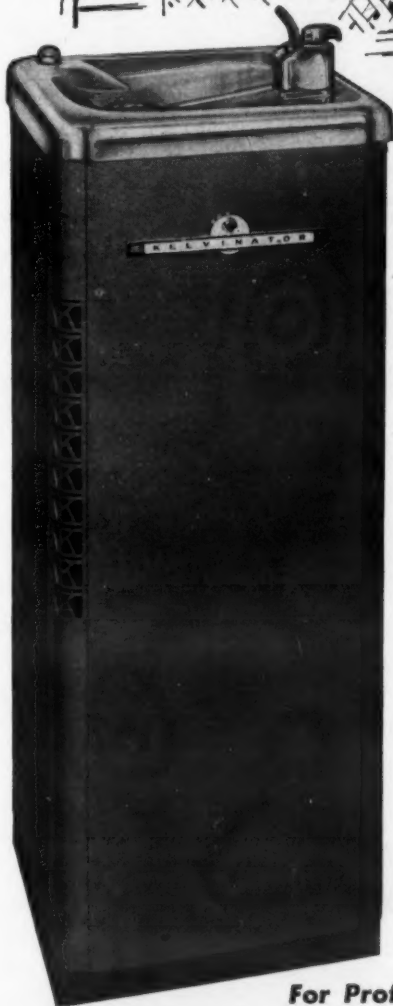
Sterling

Sterling Air Conditioning Corp.,
358 W. Main Ave., P.O. Box 1099,
Gastonia, N. C.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
60-CTG*	1/2	60-115	13 9 14 1/2	9 1/2	No	\$295.35
50-54G	1/2	60-115	26 1/2 29 1/2 16 1/2	11	Yes	317.30
75-54G	3/4	60-115/230	26 1/2 29 1/2 16 1/2	11	Yes	350.00
100-54G	1	60-230	26 1/2 29 1/2 16 1/2	11	Yes	369.30

*Casement.

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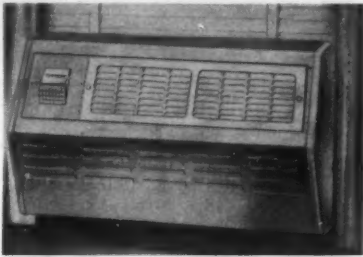
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SPECIALISTS IN REFRIGERATION SINCE 1914

Typhoon

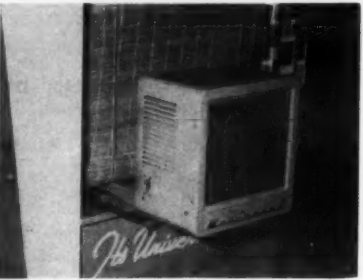
Typhoon Air Conditioning Co., Inc.,
794 Union St., Brooklyn 15, N. Y.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
T-3A1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	\$199.75
T3B1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	209.95
T4A1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	239.95
T4B1	1/2	60-115	24 20 15 1/2	12 1/2	Yes	244.95
T7A1	3/4	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	349.95
T7B1	3/4	60-115	26 1/2 28 1/2 15 1/2	12 1/2	Yes	369.95
T10A2	1	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	419.95
T10B2	1	60-230	26 1/2 28 1/2 15 1/2	12 1/2	Yes	439.95

Universal

Universal Major elec Appliances, Inc.,
Kibby St., Lima, Ohio

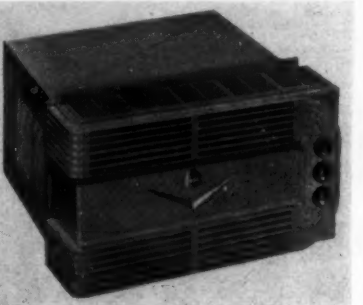


Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50-B	1/2	60-110/115	26 1/2 29 1/2 16 1/2	11 1/2	Yes	\$329.95
60-CT	1/2	60-110/115	13 8 14	8	No	329.95
75-B	3/4	60-110/115	26 1/2 29 1/2 16 1/2	11 1/2	Yes	399.95
75-B	3/4	60-220/230	26 1/2 29 1/2 16 1/2	11 1/2	Yes	449.95

Note: Model 60-CT is casement-type room cooler.

Viking

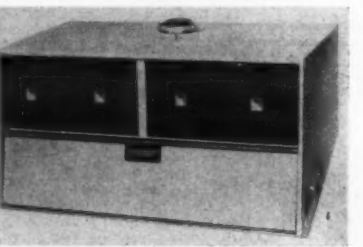
Viking Air Conditioning Div. of
National Radiator Co.,
5601 Walworth Ave., Cleveland 2, Ohio



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
340A	3/4	60-110	28 29 1/2 15	8	Yes	.....

Worthington

Worthington Corp., Harrison, N. J.



Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
SW-94-1	3/4	60-115	27 1/2 31 1/2 14 1/2	15 1/2	.....	.....
SW-94-2	3/4	60-230	27 1/2 31 1/2 14 1/2	15 1/2	.....	.....
SW-94-3	3/4	60-208	27 1/2 31 1/2 14 1/2	15 1/2	.....	.....
SW-124-2	1	60-230	27 1/2 31 1/2 14 1/2	15 1/2	.....	.....
SW-124-5	1	60-208	27 1/2 31 1/2 14 1/2	15 1/2	.....	.....

Room Air Conditioner Models

Additional room air conditioner specifications can be found on the back page.

U. S. Capitolaire

U. S. Radiator Corp., 439 Penobscot Bldg., Detroit 26, Mich.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
US-50	1/2	60-110/115	25 1/2 29 1/2 16 1/2	11	.....	.....
US-75	3/4	60-110/115	25 1/2 29 1/2 16 1/2	11	.....	.....
US-100	1	60-208/230	25 1/2 29 1/2 16 1/2	11	.....	.....
US-CM*	1/2	60-110/115	13 9 14 1/2	12	.....	.....

*Casement unit which has entire condensing unit outdoors.

UsAirco

United States Air Conditioning Corp.,
33rd & Como S.E., Minneapolis, Minn.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
7950E1	1/2	60-115	27 29 1/2 16 1/2	6	Yes	\$329.95
7950E2	1/2	50-115	27 29 1/2 16 1/2	6	Yes	329.95
7975E3	3/4	60-115	27 29 1/2 16 1/2	6	Yes	389.95
7975E4	3/4	50-115	27 29 1/2 16 1/2	6	Yes	389.95
7975E5	3/4	60-230	27 29 1/2 16 1/2	6	Yes	394.95
7975E6	3/4	50-230	27 29 1/2 16 1/2	6	Yes	394.95
7975E7	3/4	60-208	27 29 1/2 16 1/2	6	Yes	394.95
7910E8	1	60-230	27 29 1/2 16 1/2	6	Yes	439.95
7910E9	1	50-230	27 29 1/2 16 1/2	6	Yes	439.95
7910E10	1	60-208	27 29 1/2 16 1/2	6	Yes	439.95

Victor

Victor Products Corp., 901 Pope Ave.,
Hagerstown, Md.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
VRC-50	1/2	60-115	27 31 1/2 16 1/2	13 1/2	Yes	.....
VRC-75, 75-2	3/4	60-115/230	27 31 1/2 16 1/2	13 1/2	Yes	.....
VRC-75C	3/4	.....	17 36 25	.....	.....	.....
VRC-100	1	60-230	27 34 16 1/2	15 1/2	Yes	.....

Vornado

O. A. Sutton Corp.,
1812 W. Second St., Wichita 1, Kan.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
50 WAC2	1/2	60-115	22 1/2 28 1/2 13 1/2	9 1/2	Yes	.....
75 WAC3	3/4	60-115/208	27 1/2 32 15 1/2	10 1/2	Yes	.....
75 WAC2	3/4	60-115/208	27 1/2 32 15 1/2	10 1/2	Yes	.....
75 WAC4	3/4	60-115/208	27 1/2 32 15 1/2	10 1/2	Yes	.....
100 WAC3	1	60-208/230	27 1/2 32 15 1/2	10 1/2	Yes	.....
100 WAC	1	60-208/230	27 1/2 32 15 1/2	10 1/2	Yes	.....
150 WAC	1 1/2	60-208/230	30 1/2 37 1/2 17	16 1/2	Yes	.....

Westinghouse

Westinghouse Electric Corp.,
653 Page Blvd., Springfield 2, Mass.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
AW-50	1/2	60-115	24 27 1/2 13 1/2	9 1/2	Yes	\$319.95
AW-50G	1/2	60-115	24 27 1/2 13 1/2	9 1/2	Yes	319.95
AW-75	3/4	60-115	26 1/2 31 1/2 15 1/2	10	Yes	359.95
AW-75G	3/4	60-115	26 1/2 31 1/2 15 1/2	10	Yes	359.95
AW-752	3/4	60-230	26 1/2 31 1/2 15 1/2	10	Yes	359.95
AW-753	3/4	60-208	26 1/2 31 1/2 15 1/2	10	Yes	359.95
AW-75D	3/4	60-115	26 1/2 31 1/2 15 1/2	10	Yes	399.95
AW-75DG	3/4	60-115	26 1/2 31 1/2 15 1/2	10	Yes	399.95
AW-75D2	3/4	60-230	26 1/2 31 1/2 15 1/2	10	Yes	399.95
AW-75D3	3/4	60-208	26 1/2 31 1/2 15 1/2	10	Yes	399.95
AW-1002	1	60-230	26 1/2 31 1/2 15 1/2	10	Yes	419.95
AW-1003	1	60-208	26 1/2 31 1/2 15 1/2	10	Yes	419.95
AW-100D2	1	60-230	26 1/2 31 1/2 15 1/2	10	Yes	449.95
AW-100D3	1	60-208	26 1/2 31 1/2 15 1/2	10	Yes	449.95
AW-150D2	1 1/2	60-230	29 1/2 39 1/2 16 1/2	18 1/2	Yes	559.95
AW-150D3	1 1/2	60-208	29 1/2 39 1/2 16 1/2	18 1/2	Yes	559.95

D models have thermostats, heat and electrical damper controls (except that 1 1/2 hp. does not have heat). G models have 3-wire cables with ground.

Wonderair

Servel, Inc., Evansville, Ind.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
DW(RAC)-44*	1/2	60-115	15 1/2 30 1/2 11 1/2	7 1/2	No	\$249.50
DW(RAC)-64*	3/4	60-115	15 1/2 30 1/2 11 1/2	7 1/2	No	299.50
DW(RAC)-94S	3/4	60-115/230	25 1/2 31 1/2 13 1/2	5 1/2	No	299.50
DW(RAC)-94	3/4	60-115/230	27 1/2 31 1/2 15 1/2	16	No	249.50
DW(RAC)-94H†	3/4	60-115/230	27 1/2 31 1/2 15 1/2	16	No	399.50
DW(RAC)-124	1	60-230/208	27 1/2 31 1/2 15 1/2	16	No	399.50
DW(RAC)-124H†	1	60-230/208	27 1/2 31 1/2 15 1/2	16	No	449.50

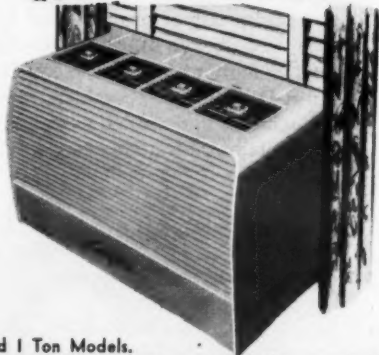
*Casement window models. †Reverse cycle heating.

York

York Corp., Roosevelt Ave. & P. R. R.,
York, Pa.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)—Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
B30	1/2	60-115	26 1/2 26 1/2 13 1/2	11 1/2	No	\$199.95
B50S	3/4	60-115	26 1/2 27 1/2 13 1/2	12 1/2	No	279.95
A50D	3/4	60-115	26 1/2 27 1/2 14 1/2	11 1/2	Yes	289.95
B50	3/4	60-115	26 1/2 28 1/2 14 1/2	6 1/2—20 1/2	No	299.95
A75	3/4	60-115/208	26 1/2 34 1/2 14 1/2	19 1/2	Yes	324.95
A75M	3/4	60-115/208	26 1/2 34 1/2 14 1/2	19 1/2	Yes	354.95
A75R	3/4	60-115/208	26 1/2 34 1/2 14 1/2	19 1/2	Yes	377.95
A75MR	3/4	60-115/208	26 1/2 34 1/2 14 1/2	19 1/2	Yes	394.95
B75	3/4	60-115/208	26 1/2 34 1/2 14 1/2	6 1/2—22 1/2	No	349.95
B75M	3/4	60-115/208	26 1/2 34 1/2 14 1/2	6 1/2—22 1/2	No	399.95
B75MR	3/4	60-115/208	26 1/2 34 1/2 14 1/2	6 1/2—22 1/2	No	429.95
B100S	1	60-208/230	26 1/2 30 1/2 15 1/2	6 1/2—22 1/2	No	399.95
B100M	1	60-208/230	27 1/2 30 1/2 14 1/2	18 1/2	Yes	449.95
B100MR	1	60-208/230	27 1/2 40 1/2 14 1/2	18 1/2	Yes	499.95
B75CM	3/4	60-115/208	37 1/2 19 1/2 27 1/2	25 1/2	Yes	519.95
B75CMR	3/4	60-115/208	37 1/2 19 1/2 27 1/2	25 1/2	Yes	569.95
B100CM	1	60-208/230	37 1/2 19 1/2 27 1/2	25 1/2	Yes	619.95
B100CMR	1	60-208/230	37 1/2 19 1/2 27 1/2	25 1/2	Yes	669.95

The whole town is talking
about FRIGID



LOW PRICED
For Extra Profits!

"COOLS!"
"HEATS!"

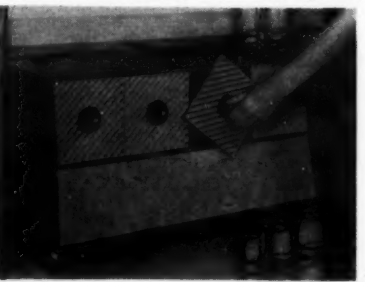
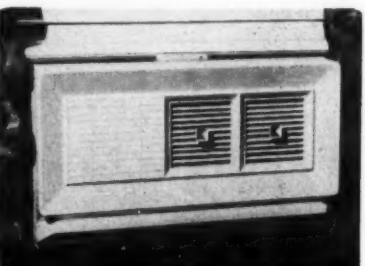
1/2 - 3/4 and 1 Ton Models.

Capit WINDOW TYPE ROOM AIR CONDITIONERS

- Thermostatic control and 2 speed motor at no extra cost.
- Designed for quieter, more efficient and dependable operation.
- Filters and dehumidifies fresh air—customers get year 'round comfort.
- U.L. and C.S.A. approved plus 5 year warranty.

Write for catalog illustrating complete line.

FRIGID INCORPORATED
BROOKLYN 32, N. Y.



LISTING Commercial Package Conditioners

Air-O-Matic

Eureka Williams Co., Div. of Henney Motor Co., Inc., 1201 E. Bell St., Bloomington, Ill.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
AEC-24	2	Semi-Herm	36 21 64½	800	Yes	Yes
AEC-36	3	Semi-Herm	36 21 64½	1,200	Yes	Yes
AEC-60	5	Semi-Herm	46 29 72½	2,000	Yes	Yes

Airtron

Airtron Corp., Holland, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
AC-200	2	Hermetic	29½ 21½ 75½	800	Yes	Yes
AC-300	3	Hermetic	29½ 21½ 75½	1,200	Yes	Yes

Alton

Alton Mfg. Co., 1112 Ross Ave., Dallas 2, Texas

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
RE-10	10	Open	96 36 66	3,600	Yes	Optional
RE-15	15	Open	120 48 74	5,400	Yes	Optional
RE-20	20	Open	128 48 80	7,200	Yes	Optional
RE-25	25	Open	128 48 80	9,000	Yes	Optional
RE-30	30	Open	149 48 80	10,800	Yes	Optional

Armstrong

Armstrong Furnace Co., 851 W. Third Ave., Columbus, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
31A-R6-21	2 tons	Hermetic	28½ 23 83	800	Yes	No
31A-R6-31	3 tons	Hermetic	28½ 23 83	1,200	Yes	No

Bal-Air

Bal-Air, Inc., 1210 McGavock St., Nashville, Tenn.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
AC-2	2	Semi-Herm	46 28 78	800	Yes	Optional
AC-3	3	Semi-Herm	46 28 78	1,200	Yes	Optional
AC-5	5	Semi-Herm	46 28 78	2,000	Yes	Optional

Barkow Weatherwise

Aug. G. Barkow Mfg. Co., 2230 S. 43rd St., Milwaukee 15, Wis.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
CU-2	2	Hermetic	36 27 48	1,200	Yes	Yes
CU-3	3	Hermetic	36 27 48	1,200	Yes	Yes
CU-5	5	Semi-Herm	40 27 80	2,000	Yes	Yes

Brunner (BAC)

Brunner Mfg. Co., 1821 Broad St., Utica, N. Y.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
BAC-20	2	Open	35¼ 25¼ 76¼	800	Yes	Optional
BAC-30	3	Open	35¼ 25¼ 79¼	1,200	Yes	Optional
BAC-50	5	Open	44¼ 26¼ 87	2,000	Yes	Optional
BAC-75	7½	Open	51¼ 30¼ 95¼	3,000	Yes	Optional
BAC-100	10	Open	57 30¼ 99¼	4,000	Yes	Optional
BAC-150	15	Open	70 32 93	6,000	Yes	Optional
BAC-200	20	Open	70 32 93	8,000	Yes	Optional

Carrier

Carrier Corp., 300 S. Geddes St., Syracuse 1, New York

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
50K2	2	Hermetic	36 21 54	1,000	Yes	Optional
50K4	3	Hermetic	41 22¼ 80¼	1,500	Yes	Optional
50K6	5	Hermetic	41 22¼ 90¼	2,500	Yes	Optional
50K8	7½	Hermetic	48 30¼ 102	3,750	Yes	Optional
50K12	10	Hermetic	52 32¼ 107¼	5,000	Yes	Optional
50K16	15	Hermetic	52 30¼ 107¼	7,500	Yes	Optional

Chrysler Airtemp

Chrysler Corp., Airtemp Div., 1600 Webster St., Dayton, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
1002-1	2	Hermetic	35 19¼ 75¼	800	Yes	Optional
1003-2	3	Hermetic	35 19¼ 75¼	1,200	Yes	Optional
1005-1	5	Hermetic	48¼ 19¼ 81¼	2,000	Yes	Optional
1008-1	7½	Hermetic	48¼ 19¼ 81¼	3,000	Yes	Optional
1011	10	Hermetic	58 28 85	4,000	Yes	Optional
1015	15	Hermetic	58 32 93	6,000	Yes	Optional

Height is less plenum.

Clime-Matic

United Conditioning Corp., Croton Falls, N. Y.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SC200	2	Semi-Herm	30 23¼ 66	1,000	Yes	Optional
SC250	2½	Semi-Herm	30 23¼ 66	1,200	Yes	Optional
SC350	3	Semi-Herm	35 25 80	1,500	Yes	Optional
SC550	5	Semi-Herm	43 25 80	2,500	Yes	Optional
SC825	7½	Semi-Herm	52 28¼ 80	3,500	Yes	Optional
SC1100	2-5's	Semi-Herm	63¼ 28¼ 92	4,500	Yes	Optional
SC1650	2-7½'s	Semi-Herm	69¼ 32¼ 97¼	6,500	Yes	Optional
SC2003	2-7½'s	Semi-Herm	87 34 70	8,000	Yes	Optional
SC2253	3-7½'s	Semi-Herm	87 34 70	9,000	Yes	Optional
SC2502	1-15	Open	108 34 84	10,000	Yes	Optional
SC2503	3-7½'s	Semi-Herm	108 34 84	10,000	Yes	Optional
SC3002	2-15's	Open	108 34 84	12,000	Yes	Optional

—Above Are Package Units—

—Below Are Remote Control Units—

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
RCA200	2	Semi-Herm	30 35 26	1,000	Yes	Optional
RCA200	2	Semi-Herm	30 21¼ 22¼	1,200	Yes	Optional
RCA265	2	Semi-Herm	30 35 26	1,200	Yes	Optional
RCA265	2	Semi-Herm	30 21¼ 22¼	1,500	Yes	Optional
RCA350	3	Semi-Herm	35 36 26¼	1,500	Yes	Optional
RCA350	3	Semi-Herm	35 22¼ 22¼	2,500	Yes	Optional
RCA550	5	Semi-Herm	43 43 26¼	2,500	Yes	Optional
RCA550	5	Semi-Herm	43 22¼ 22¼	3,500	Yes	Optional
RCA825	7½	Semi-Herm	52 43 30	3,500	Yes	Optional
RCA825	7½	Semi-Herm	52 26¼ 24	4,500	Yes	Optional
RCA1100	2-5's	Semi-Herm	52 48¼ 46	4,500	Yes	Optional
RCA1100	2-5's	Semi-Herm	63¼ 28¼ 23	6,500	Yes	Optional
RCA1650	2-7½'s	Semi-Herm	63 56 46	6,500	Yes	Optional
RCA1650	2-7½'s	Semi-Herm	69¼ 31¼ 25	...	...	...

Note: RCA—Air handling section; RCR—Machine compartment section. Both sections for complete remote control unit.

Coleman

The Coleman Co., Inc., 250 North St. Francis, Wichita, Kan.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
776A498	2	Hermetic	25 30¼ 82	700	Yes	Yes
777A498	3	Hermetic	25 30¼ 82	1,100	Yes	Yes
777A499	3	Hermetic	25 30¼ 82	1,100	Yes	Yes
778-498	5	Hermetic	25 37 82	1,800	Yes	Yes
778-499	5	Hermetic	25 37 82	1,800	Yes	Yes
773-498	5	Hermetic	21¼ 34¼ 82	1,800	Yes	Yes

All models include commercial plenum.

Cool-A-Matic

Automatic Firing Corp., 4417 Aleatha Ave., St. Louis 16, Mo.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
CSC-300	3	Hermetic	39¼ 24¼ 85	1,200	Yes	Yes
CSC-500	5	Hermetic	39¼ 24¼ 85	2,000	Yes	Yes
CSC-750	7½	Hermetic	39¼ 24¼ 85	2,800	Yes	Yes

Cool-Ette

Cool-Ette, Inc., 20080 James Couzens Hwy., Detroit 35, Mich.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
R200F	2	Hermetic	...	800	No	Optional
R300F	3	Hermetic	...	1,200	Yes	Optional

Curtis

Curtis Mfg. Co., Refrigerating Machine Div., 1905 Kienlen Ave., St. Louis, Mo.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
250PA	2	Open	35¼ 22¼ 66¼	800	Yes	Optional
250PAH	2	Hermetic	35¼ 22¼ 66¼	800	Yes	Optional
400PA	3	Open	35¼ 22¼ 66¼	1,200	Yes	Optional
400PAH	3	Hermetic	35¼ 22¼ 66¼	1,200	Yes	Optional
600PA	5	Open	42¼ 24¼ 75¼	2,000	Yes	Optional
600PAH	5	Hermetic	42¼ 24¼ 75¼	2,000	Yes	Optional
800PA	7½	Open	46¼ 27¼ 84¼	3,000	Yes	Optional
800PAH	7½	Hermetic	46¼ 27¼ 84¼	3,000	Yes	Optional
1200PA	2-5's	Open	70¼ 29¼ 81¼	4,000	Yes	Optional
1200PAH	2-5's	Hermetic	70¼ 29¼ 81¼	4,000	Yes	Optional
FWH-1500-CTAC	15	Open	81 31¼ 76	6,000	Yes	Optional



Speeds Up SERVICING — Saves GAS . . .

Designed to charge small hermetic systems from a 5 lb. drum. Why be a "frost-line feeler," when you can accurately determine the exact charge on a special, visible scale with a moveable dial calibrated in ounces? Amount of charge can be read directly on dial. Gross weight capacity — 11 lbs. Scale accurate to ½ ounce. Compact metal carrying case folds to 11 inches square. Shipping weight, 17 lbs.

See your Supplier Jobber or Order Direct

Complete as illustrated, less drum \$39.50 F.O.B.

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For "easy-to-get" product information . . . Use Key No. for fastest service.

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KT WATER SAVERS



HOME or BUSINESS

KENNARD KT Water Savers, "Packaged Economy Line Cooling Towers" are ready for you NOW! Outstanding features found in KT Water Savers—Centrifugal type fan, redwood wetted deck, galvanized construction throughout, engineered for long life — OUTDOOR or INDOOR. Sized to meet popular demand, 3, 5, 8, 11 & 16 tons. Catalog KT-2.

Complete line of Cooling Towers—20 thru 75 tons. Cat. CT-1

4 Reasons Why

KENNARD ENGINEERED
KT WATER SAVERS
ARE BETTER



1. QUIET



2. SAFE



3. COMPACT



4. RUGGED

KENNARD CORPORATION

1825 S. HANLEY RD. • ST. LOUIS 17, MO.

G-E Air Conditioning Sets Up New Sales Unit

BLOOMFIELD, N. J.—Establishment of a national accounts sales unit has been announced by the Commercial Products Dept. of the General Electric Co. Air Conditioning Div.



The unit will provide a centralized purchasing contact for large national users of G-E packaged air conditioners and drinking water coolers for business and industry.

Bert Natkin, with G-E since 1950, has been appointed manager of the new unit. He will report to W. F. R. Karsten, Commercial Products manager of marketing.

Natkin was formerly the department's sales representative for greater New York and northern New Jersey. He will have his office at 570 Lexington Ave., G-E headquarters in New York City.

Establishment of the National Accounts unit is part of the G-E Air Conditioning Div.'s marketing expansion program. On March 4, two new national sales regions, with headquarters in Atlanta and Cleveland, were added to the former four-region marketing pattern.

Commercial Type Package Air Conditioners

Emerson

Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York 11, N. Y.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SC 2A2	2	Hermetic	29 1/2 20 72*	800	Yes	Optional
SC 3A2	3	Hermetic	29 1/2 20 72*	1,120	Yes	Optional
SC 3A3	3	Hermetic	29 1/2 20 72*	1,120	Yes	Optional

*Height 54 in. without discharge hood.

Frick

Frick Co., Waynesboro, Pa.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
300	3	Hermetic	38 24 81	1,300	Yes	Optional
520	5	Hermetic	42 27 86	2,000	Yes	Optional
750	7 1/2	Hermetic	55 27 90	2,700	Yes	Optional

Frigidaire

Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
AST-300	3	Hermetic	40 22 81	1,230	Yes	Optional
AST-500	5	Hermetic	40 27 86	2,000	Yes	Optional
AST-750	7 1/2	Hermetic	40 27 86	2,700	Yes	Optional
SC-1001	10	Open	72 60 86 1/2	4,000	Optional	Optional

Governair

Governair Corp., 513 North Blackwelder, Oklahoma City 4, Okla.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SC-30B	3	Hermetic	33 1/2 24 70 1/2*	1,215	Yes	Optional
SC-50B	5	Hermetic	42 27 70 1/2	2,050	Yes	Optional
SC-75B	7 1/2	Hermetic	52 30 70 1/2	3,035	Yes	Optional
SC-100B	2-5's	Hermetic	74 29 77	4,040	Yes	Optional
SCU-10	10	Open	99 38 66 1/2	3,500	No	Optional
SCU-150B	2-7 1/2's	Hermetic	83 31 80	6,070	Yes	Optional
SCU-15	15	Open	119 44 70 1/2	5,200	No	Optional
SCU-20	20	Open	129 48 78 1/2	7,000	No	Optional

*Does not include plenum.

General Electric

General Electric Co., 5 Lawrence St., Bloomfield, N. J.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
FD 30 G	3	Hermetic	34 21 82 1/2	1,200	Yes	Optional
FD 50 G	5	Hermetic	45 21 82 1/2	2,000	Yes	Optional
FD 75 G	7 1/2	Hermetic	45 22 88 1/2	3,000	Yes	Optional
FD 100 G	2-5's	Hermetic	55 28 92 1/2	4,000	Yes	Optional
FD 150 G	2-7 1/2's	Hermetic	77 28 90 1/2	6,000	Yes	Optional

Homart

Sears Roebuck & Co., 925 So. Homan Ave., Chicago, Ill.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
546.3033	3	Hermetic	39 1/2 24 85	1,200	Yes	..
546.5051	5	Hermetic	39 1/2 24 85	2,000	Yes	..
546.5071	7 1/2	Hermetic	39 1/2 24 85	2,800	Yes	..

Janitrol

Surface Combustion Corp., 400 Dublin Ave., Columbus, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SAC24-45	2	Hermetic	26 1/2 26 88 1/2	800	Yes	..
SAC36-45	3	Hermetic	26 1/2 26 88 1/2	1,200	Yes	..
SAC60-45	1-2 & 1-3	Hermetic	40 1/2 26 88 1/2	2,000	Yes	..

Jordan

Jordan Refrigerator Co., Inc., 58th St. & Grays Ave., Philadelphia 43, Pa.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
20	2	Open	35 1/2 25 76 1/2	800	..	Optional
30	3	Open	35 1/2 25 79 1/2	1,200	..	Optional
50	5	Open	44 1/2 26 87	2,000	..	Optional
75	7 1/2	Open	51 1/2 30 95 1/2	3,000	..	Optional
100	10	Open	57 30 99 1/2	4,000	..	Optional

Kauffman

Kauffman Air Conditioning Co., 4505 Olive St., St. Louis, Mo.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
20	2	Hermetic	36 21 84	800	Yes	Optional
30	3	Hermetic	37 22 88	1,250	Yes	Optional
50	5	Hermetic	37 22 88	2,000	Yes	Optional
75	7 1/2	Hermetic	37 22 88	3,000	Yes	Optional
100	10	Open	74 36 80	4,000	Yes	Optional
150	15	Open	84 36 84	6,000	Yes	Optional

Koch

Koch Refrigerators, Inc., North Kansas City, Mo.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
500	5	Hermetic	48 27 91	2,000	Yes	Optional
750	7 1/2	Hermetic	48 27 91*	3,000	Yes	Optional

*Includes plenum.

Lennox

The Lennox Furnace Co., 4901 Marsalls Ave., P. O. Box 1839, Fort Worth, Texas

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
CU10-2	1-2 hp.	Hermetic	22 1/2 27 68 1/2*	800	Yes	..
CU10-3	1-3 hp.	Hermetic	22 1/2 27 68 1/2*	1,200	Yes	..
SCU-4	2-2 hp.	Hermetic	44 28 64	1,600	Yes	..
SCU-5	1-2 hp. & 1-3 hp.	Hermetic	44 28 64	2,000	Yes	..
SCU-6	2-3 hp.	Hermetic	44 28 64	2,400	Yes	..

Note: Above units in single and three phase.

*Includes plenum.

Lipman

Lipman Div., Yates American Mach. Co., 126 E. Shirland Ave., So. Beloit, Ill.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
LH-200	2	Semi-Herm	36 22 46 1/2*	800	Optional	..
LH-300	3	Semi-Herm	36 22 46 1/2*	1,200	Optional	..
LH-500	5	Semi-Herm	46 29 50 1/2†	2,000	Optional	..
LH-750	7 1/2	Semi-Herm	46 29 50 1/2†	3,000	Optional	..

*64 1/2 in. with plenum.

†72 1/2 in. with plenum.

Marvair

Muncie Gear Works, Inc., Muncie, Ind.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
402XF1A	2	Hermetic	28 25 77 1/2	667	Yes	Optional
405XF1A	3	Hermetic	28 25 77 1/2	1,000	Yes	Optional

Mayfair

Sunbeam Air Conditioner Div., American Radiator & Standard Sanitary Corp., Elyria, Ohio

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
CCA-2	2	Hermetic	25 22 82	800	Yes	..*
CCA-3	3	Hermetic	25 22 82	1,200	Yes	..*
CCA-5	5	Hermetic	42 24 88	2,000	Yes	..*

*Space provided.

Melco

Melchior, Armstrong, Dessau Co., Grand Ave., Ridgefield, N. J.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
MC36	3	Semi-Herm	36 23 83 1/2	1,200	Yes	Optional
MC36D	3	Semi-Herm	36 23 83 1/2	1,200	Yes	Optional
MC56	5	Semi-Herm	42 24 91 1/2	2,000	Yes	Optional
MC56D	5	Semi-Herm	42 24 91 1/2	2,000	Yes	Optional
MC81	7 1/2	Semi-Herm	42 24 91 1/2	3,000	Yes	Optional
MC81D	7 1/2	Semi-Herm	42 24 91 1/2	3,000	Yes	Optional

Mueller Climatrol

Mueller Climatrol, 2005 West Oklahoma Ave., Milwaukee 15, Wis.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
904-2	2	Hermetic	28 23 70 1/2*	800	Yes	Optional
904-3	3	Hermetic	36 27 72 1/2*	1,200	Yes	Optional
904-5	5	Hermetic	40 27 73 1/2*	2,000	Yes	Optional
904-7	7 1/2	Hermetic	46 31 75†	3,000	Yes	Optional

*Plus 10% for outlet grille assembly.

†Plus 12% for outlet grille assembly.

the newest *Brundage* development...



INSTALLS IN ANY POSITION

*ONLY 10-1/2" x 15" x 15-7/16"

YET IT DELIVERS 1150 CFM AT .30 STATIC

*Direct Drive Units in higher and lower capacities also available... Information upon request.

THE NEW BRUNDAGE 9" DIRECT DRIVE BLOWER

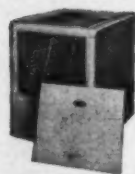
Here is one case where the biggest value comes in the smallest possible package. Especially designed for air conditioning applications, this new 9" Brundage Blower combines extremely high air handling capacity with a compactness and flexibility to make every cubic inch of your cooling equipment work to its fullest.

The internally mounted motor not only insures space economy and by eliminating all belts and pulleys, it cuts the cost, ends a major maintenance problem... a design simplification that pays dividends in many, many years of superior service. To give you complete freedom in designing your cooling equipment, the 9"

Brundage Blower may be furnished with mounting legs which allow you to place the unit in any convenient position... with full assurance of peak operating efficiency.

Test a Brundage 9" Blower in your own engineering department. Learn how Brundage design, construction and performance can add a new measure of quality to your products. We will be happy to provide everything you need to make a careful evaluation.

Ask about the Brundage production program. It is planned to simplify your inventory problems and free capital which might be tied up in blower stocks.



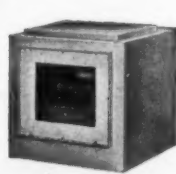
BLOWER-FILTER UNITS



BELT DRIVE BLOWERS



BLOWER EXHAUSTERS



SPECIAL BLOWER CABINET ASSEMBLIES

"INTEGRITY IS OUR TRADITION"

Brundage
COMPANY

PRODUCTS OF
CHARACTER

503 NORTH PARK STREET
KALAMAZOO, MICHIGAN

We would like to have further data on:

Direct Drive Blowers ()

Belt Drive Blowers ()

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

Big New Drugstore In St. Louis To Be Cooled

ST. LOUIS—Katz Drug Co. early this fall will open what it claims will be the largest and most modern super drugstore in the St. Louis area.

Located in the 400 block of North Kirkwood Rd., the building will contain 28,000 sq. ft. of floor space and will be completely air conditioned, according to Earl S. Katz, president.

TRUE BOTTLE BEVERAGE COOLERS

Feature a Complete Line that will **MAKE CUSTOMERS BUY!**

The TRUE line includes baked enamel or stainless steel models... in sizes for cooling from 13 to 50 cases of 12 oz. bottles. Available with 3 different types of refrigeration.

BLOWER COIL
ICE CUBE MAKER
GRAVITY COIL

Whether you buy one cooler or a hundred, it's worth your time to get complete information from TRUE. Details are yours for the asking.

TRUE MANUFACTURING COMPANY
2905 PINE STREET ST. LOUIS 3, MISSOURI

Key to WATER COOLER - ICE MAKER SALES...

FILTRINE "Last-Master" PURIFIER

Stop service calls... keep out rust and sludge... open new doors to sales acceptance!—with coolers, ice-makers, sell "Last-Master"!—checks chlorine, traps sediment; promotes service-free satisfaction with all water processing appliances. Write—

Filtrine MANUFACTURING CO.
BROOKLYN 38 • N. Y.
"Water Coolers and Filters for 40 Years"

A TYPHOON FRANCHISE IS PROFIT INSURANCE IN Air Conditioning

Air Conditioning Units
1½-20 tons
Multi-Packaged Systems
Up to 60 tons
Prop-R-Temp Heat Pumps
2-20 tons
Evaporative Condensers
Packaged Water Chillers

TYPHOON AIR CONDITIONING CO., INC.
794 Union Street, Brooklyn 15, N. Y.

MORRIS
Stainless Steel
COOLING TOWERS

Free Literature

MORRIS Sheet Metal Works
635 W. Mound St. Columbus 8, O.

Commercial Type Package Air Conditioners

Philco

Philco Corp., Philadelphia 34, Pa.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
1253-K*	2	Hermetic	31 24½ 59½	1,000	Yes	Optional
1252-K	2	Hermetic	31 24½ 52½	1,000	Yes	Optional
1251-K	2	Hermetic	31 24½ 51½	1,000	Yes	Optional
1554-K	5	Hermetic	42 23 82½	2,100	Yes	Optional
1354-K	3	Hermetic	32 23 82½	1,200	Yes	Optional
1854-K	8	Hermetic	73½ 22½ 82½	3,300	Yes	Optional

*Includes plenum section.

†To be used with warm air heating system.

Model 1251-K consists of cooling section only.

Sterling

Sterling Air Conditioning Corp., 358 W. Main Ave., P. O. Box 1099, Gastonia, N. C.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SE-20	2	Hermetic	36 20 32	500	Yes	Optional
"Twin-Zone" PRT2	2	Hermetic	36 22 47½	800	No	Optional
PRT3	3	Hermetic	36 22 47½	1,200	No	Optional
BAC50-S	5	Open	44½ 26½ 87	2,000	Yes	Optional
BAC75-S	7½	Open	51½ 30½ 95½	3,000	Yes	Optional
BAC100-S	10	Open	57 30½ 99½	4,000	Yes	Optional

Thatcher

Thatcher Furnace Co., Center St., Garwood, N. J.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
T20-1 F	2	Hermetic	39 21½ 74½	800	Yes	Optional
T20-3 F	3	Hermetic	39 21½ 74½	1,200	Yes	Optional
T30-1 F	3	Hermetic	39 21½ 74½	1,200	Yes	Optional
T30-3 F	3	Hermetic	39 21½ 74½	1,200	Yes	Optional
C50-1 F	5	Hermetic	45½ 23½ 84½	2,000	Yes	Optional
C50-3 F	5	Hermetic	45½ 23½ 84½	2,000	Yes	Optional
S75-3 F	7½	Hermetic	48½ 26 94½	3,000	Yes	Optional
S100-3 F	10	Hermetic	62½ 26 99½	4,000	Yes	Optional
S150-3 F	15	Hermetic	79 31 106½	6,000	Yes	Optional

Trane

Trane Co., Second & Cameron Ave., La Crosse, Wis.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
34SC	3	Hermetic	37½ 21½ 83½*	1,200	Yes	Optional
54SC	5	Hermetic	45½ 25½ 84½*	2,000	Yes	Optional
74SC	7½	Hermetic	59½ 29½ 86½*	3,000	Yes	Optional
102SCW	10	Open	67½ 35½ 82½*	4,000	Optional	Optional
102SCE	10	Open	109½ 35½ 82½*	4,000	Optional	Optional
152SCW	15	Open	71½ 37½ 88½*	6,000	Optional	Optional
152SCE	15	Open	117½ 37½ 88½*	6,000	Optional	Optional
202SCW	20	Open	71½ 40½ 92½*	8,000	Optional	Optional
202SCE	20	Open	124½ 40½ 92½*	8,000	Optional	Optional

*Height includes plenum.

Typhoon

Typhoon Air Conditioning Co., Inc., 794 Union St., Brooklyn 15, N. Y.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
H34SC	3	Hermetic	37 23½ 87*	800	Yes	Optional
34SC	2	Open	37 23½ 87*	800	Yes	Optional
H44SC	3	Hermetic	37 23½ 87*	1,200	Yes	Optional
44SC	3	Open	37 23½ 87*	1,200	Yes	Optional
H64SC	5	Hermetic	37 23½ 87*	2,000	Yes	Optional
64SC	5	Open	37 23½ 87*	2,000	Yes	Optional
H84SC	7½	Hermetic	42 23½ 91½*	3,000	Yes	Optional
84SC	7½	Open	42 23½ 91½*	3,000	Yes	Optional
H94SC	7½	Hermetic	52 27 95½*	3,800	Yes	Optional
94SC	7½	Open	52 27 95½*	3,800	Yes	Optional
114SC	10	Open	52 27 95½*	4,000	Yes	Optional
164SC	15	Open	62 33 95	6,000	Yes	Optional
214SC	20	Open	62 33 95	8,000	Yes	Optional
264SC	25	Open	62 33 95	8,000	Yes	Optional

*With plenum.

UsAirco

United States Air Conditioning Corp., 33rd & Como S.E., Minneapolis, Minn.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
7720F	2	Hermetic	39 21½ 74½	800	Yes	Optional
7730F	3	Hermetic	39 21½ 74½	1,200	Yes	Optional
7750F	5	Hermetic	45½ 23½ 84½	2,000	Yes	Optional
7775F	7½	Hermetic	48½ 26 94½	3,000	Yes	Optional
77100F	10	Hermetic	62½ 26 99½	4,000	Yes	Optional
77150F	15	Hermetic	79 31 106½	6,000	Yes	Optional

Models above show height with plenum.

Height without plenum: Model 7720F, 62½; 7730F, 62½; 7750F, 70½; 7775F, 79½; 77100F, 84½; 77150F, 91½.

Unarco

Union Asbestos & Rubber Co., 332 S. Michigan Blvd., Chicago 4, Ill.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SCH-24W	2	•	25½ 22½ 72	800	Yes	Optional
SCH-36W	3	•	37½ 22½ 86	1,200	Yes	Optional
SCH-60W	5	•	46½ 28½ 97	2,000	Yes	Optional
SCH-90W	7½	•	48½ 28½ 97	3,000	Yes	Optional
SCH-120W	10	•	65½ 29½ 100	4,000	Yes	Optional
SCH-180W	15	•	65½ 29½ 108	6,000	Yes	Optional
AEC-3	3	Semi-Herm	77½ 32 60	1,200	Yes	Optional
AEC-5	5	Semi-Herm	77½ 32 60	2,000	Yes	Optional
AEC-7½	7½	Semi-Herm	97½ 35½ 65	3,000	Yes	Optional
AEC-10	10	Semi-Herm	103½ 38½ 68	4,000	Yes	Optional
AEC-15	15	Semi-Herm	121½ 41½ 74	6,000	Yes	Optional
AEC-20	20	Open	133½ 51½ 82½	8,000	Yes	Optional
AEC-25	25	Open	133½ 51½ 82½	10,000	Yes	Optional
AEC-30	30	Open	138½ 57½ 89½	12,000	Yes	Optional
AEC-40	40	Open	150 60 90	16,000	Yes	Optional
AEC-50	50	Open	205½ 60 100	20,000	Yes	Optional
SC-3	3	Semi-Herm	46½ 32 60	1,200	Yes	Optional
SC-5	5	Semi-Herm	46½ 32 60	2,000	Yes	Optional
SC-7½	7½	Semi-Herm	58½ 35½ 65	3,000	Yes	Optional
SC-10	10	Semi-Herm	64½ 38½ 68	4,000	Yes	Optional
SC-15	15	Semi-Herm	70½ 41½ 74	6,000	Yes	Optional
SC-20	20	Open	80½ 51½ 82½	8,000	Yes	Optional
SC-25	25	Open	80½ 51½ 82½	10,000	Yes	Optional
SC-30	30	Open	82½ 57½ 89½	12,000	Yes	Optional
SC-40	40	Open	91½ 60 90	16,000	Yes	Optional
SC-50	50	Open	125½ 60 100	20,000	Yes	Optional

*Semi-hermetic; open type available on special order.

Unitaire

Westinghouse Electric Corp., Air Conditioning Div., 133 Readville St., Hyde Park, Boston 35, Mass.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SU-21	2	Hermetic	36 22½ 68½	800	•	Optional
SU-31	3	Hermetic	36 22½ 68½	1,200	•	Optional
SU-51	5	Hermetic	44 22½ 77½	2,000	•	Optional
SU-81	7½	Hermetic	51 25½ 85	3,200	•	Optional
MU-101	2-5's	Hermetic	60½ 31½ 91	4,000	•	Optional
MU-151	2-7½'s	Hermetic	76 32 91	6,000	•	Optional

U.S. Capitolaire

U. S. Radiator Corp., 439 Penobscot Bldg., Detroit 26, Mich.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
USCH-24-W	2	Hermetic	25½ 22½ 72	800	Yes	Optional
USCH-36-W	3	Hermetic	37½ 22½ 86	1,200	Yes	Optional
USCH-60-W	5	Hermetic	46½ 28½ 97	2,000	Yes	Optional
USCH-90-W	7½	Hermetic	48½ 28½ 97	3,000	Yes	Optional
USCH-120-W	10	Hermetic	65½ 29½ 100	4,000	Yes	Optional
USCH-180-W	15	Hermetic	82 29½ 108	6,000	Yes	Optional

Note: All units are reversible. Grilles can be placed on front or rear. Additional side grilles available as optional equipment.

Wonderair

Servel, Inc., Evansville, Ind.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
130E	3	Hermetic	38 20½ 75	1,200	Yes	Optional
150E	5	Hermetic	44½ 22½ 83	2,000	Yes	Optional
175E	7.5	Hermetic	48½ 26½ 92	3,000	Yes	Optional
SDE-96	5.4 Ton	Absorption	58 24½ 84½	2,000	Yes	Optional

Worthington

Worthington Corp., Harrison, N. J.

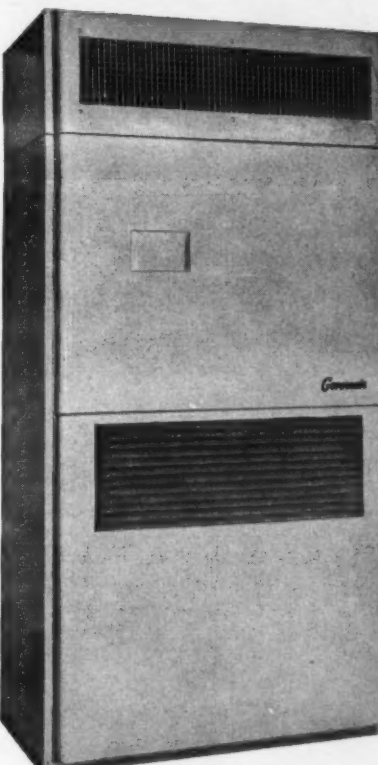
Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
SCY-40	3	Hermetic	37 21 83	1,200	Yes	Optional
SCY-60	5	Hermetic	48 21 86	2,000	Yes	Optional
SCY-80	7½	Hermetic	58 23½ 82½	3,000	Yes	Optional
SCY-1040	2-5's	Hermetic	82½ 31 98	4,000	Yes	Optional
SCY-1550	2-7½'s	Hermetic	82½ 31 98	6,000	Yes	Optional

York

York Corp., Roosevelt Ave. & P. R. R., York, Pa.

Model No.	Comp. Size (In Hp.)	Type Comp. (Open or Hermetic)	—Dimensions— Width Depth Height	C.F.M. Rating	Temp. Control	Heating Coil (Standard or Optional)
151	2-¼'s	Hermetic	42½ 22½ 39½	770	Yes	Optional
201	2-1's	Hermetic	42½ 22½ 39½	925	Yes	Optional
351B	3	Open	32 23 82½	1,200	Yes	Optional
551B	5	Open	42 23 90½	2,000	Yes	Optional
552B	3	Hermetic	32 23 82½	1,200	Yes	Optional
552B	5	Hermetic	42 23 82½	2,000	Yes	Optional
250A	2-1's	Hermetic	31 23½ 51½	1,000	Optional	Optional
250W	2-1's	Hermetic	31 23½ 59½	1,000	Optional	Optional
801B	1-5	Hermetic	73½ 23 82½	3,000	Yes	Optional
1002	2-5's	Hermetic	55 44 90½	3,500	Yes	Optional
1502	3-5's	Hermetic	72 44 90½	5,000	Yes	Optional

An "Upright" Air Conditioner!



Governair
Type SC
Conditioner

Yes, this is an upright Governair self-contained conditioner—but that's not the reason for the halo.

The halo is there because this air conditioner behaves itself! Built to perform true air conditioning quietly and efficiently... it does just that! Flexibility, compact design, easy installation, dependability and economy are among its many virtues.

Available in capacities from 3 to 15 tons, the Governair Type SC Conditioner is the answer to your air conditioning needs in commerce, institutions, factories and homes. Choose Governair... originators* of completely packaged air conditioners!



AIR CONDITIONERS

COMPLETELY PACKAGED AIR CONDITIONERS

BLAST COILS FOR HEATING & COOLING

EVAPORATIVE CONDENSERS

GOVERNNAIR

*Type SCU Conditioners Patent No. 2,297,928

GOVERNNAIR CORPORATION • 513 N. Blackwelder • Oklahoma City, Okla.

You'd Love It Here

JACKSONVILLE, Fla.—Lovett's Super Market, 2025 Blanding Blvd., has been air conditioned, enlarged, and remodeled, according to L. Y. DeLoach, manager.

To Cool New Store

OKLAHOMA CITY—A building to be erected at 2517 N.W. 23 for occupancy by O K Furniture & Rug Co.'s third branch store will be air conditioned.

MR. R. DOUGLAS AVERITT
Memphis Refrigeration Co.
Memphis, Tenn.



Doug Averitt says—

**"Wherever
there's an
iceman delivering ice
there's a Carrier
Icemaker prospect"**

Sherlock Holmes couldn't have made a keener observation.

Doug Averitt translated it into results.

In 16 weeks he sold 53 Carrier Automatic Icemakers.

Mr. Averitt is an analyst . . . keeps his eyes open and his mind working.

He saw that the Carrier Icemaker had a wide and profitable market—and a thumping list of buying reasons any prospect could appreciate. We quote:

"Our summers are hot and long. We have low electricity rates and pure artesian water. Delivered ice here costs 92c a hundred. We couldn't ask for a better opportunity.

"Cafes, restaurants, hotels and institutions are our principal prospects. We call on every establishment the iceman calls on, and good use of local advertising, telephone directories—plus the recommendations of satisfied users—uncovers many other prospects.

"Good old leg-work, plus the great national reputation and prestige of Carrier, provides the follow-through. And we seldom have to go into all the Carrier's operating features—a factual presentation of Carrier cleanliness, convenience and economy benefits usually does the job!

"Let me say, too, that the Carrier sales promotion pieces are the best in the field; and your sales contests are year-round stimulants. We've also found that Carrier Icemaker sales have been an entering wedge for a good number of Carrier air conditioning sales that we made afterwards."

This is just one of many success stories that are being written into the history of the most enthusiastic selling organization of automatic icemakers in America. The Carrier is saturated with interest-arousing appeals: Ice-cost savings of up to 80% and more over the prices of delivered ice. Floor-space saving (only 24 by 25 inches required per standard unit). Cubes, plus choice (as dialed) of 3 grades of crushed ice from built-in crusher. Self-cleaning action. Choice of models and bin capacities to fit any user's needs exactly. And lots more. Want further facts of dealer-salesman interest? Mail the coupon, or see the Carrier distributor listed in your Classified Telephone Directory.



Carrier

air conditioning
refrigeration
industrial heating

CARRIER CORPORATION, 310 S. Geddes St., Syracuse, New York

Send further dealer-salesman information on the Carrier Icemaker and how to make money "following the iceman."

Name _____

Business or Occupation _____

Address _____



What's New

When requesting further information on new products, please use "Information Center" form.

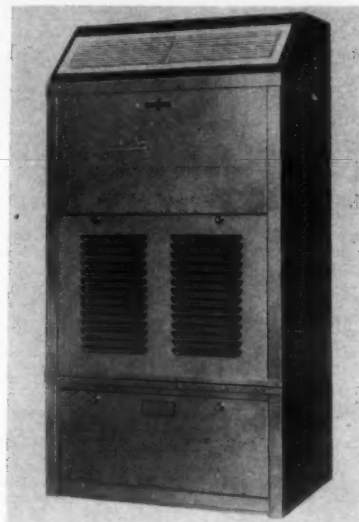
New Filter Grille on Barkow 5-Ton A.C. Unit

—KEY NO. D-430—

MILWAUKEE—The Barkow 5-ton "Weatherwise" CU air conditioning units are now being produced with a new type of filter grille, Barkow Mfg. Co. here announced recently.

Made of heavy gauge sheet metal, the new grille has two rows of inverted louvers which direct the air upward through the filter screen. This improved design protects the filter and assures longer life and greater efficiency, the manufacturer said.

The CU-5 air conditioner is a self-contained unit designed for commercial use. It features a hermetically-sealed compressor with "Freon" capillary system, as well as complete thermostatic control.

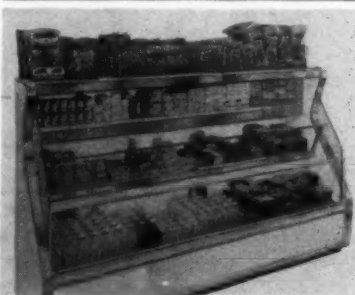


Plug-In Thermostat Available for Air Conditioners

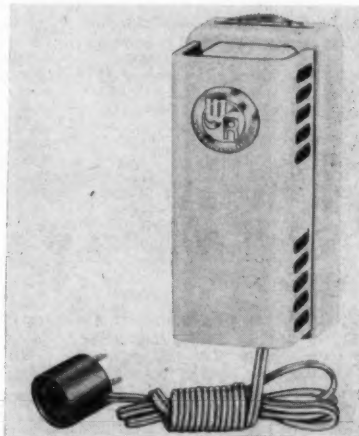
—KEY NO. D-431—

ST. LOUIS—White-Rodgers Electric Co. has announced a special thermostat for automatic control of window and room air conditioners that can be quickly installed by the owner as simply as plugging in a lamp.

Automatic control provides greater comfort, prevents overcooling, and cuts operating costs and wear on equipment as it only runs when needed.



Control is rated at 1 hp. which will handle 115-volt air conditioners and all window fans.

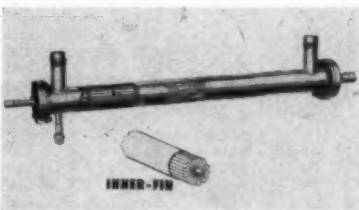


Display Shelf Replaces Mirror In Dairy Case

—KEY NO. D-432—

CINCINNATI—A new styled self-service display case for dairy products, vegetables, and packaged meats, called the OD-8A, has been introduced by the C. Schmidt Co. here.

The case features a refrigeration system that will maintain balanced refrigeration for both shelves. The traditional mirror above has been replaced with an unrefrigerated shelf for the display of related items. The top may also be used as a second display shelf.



Heat-X Shows Line of Inner-Fin Water Chillers

—KEY NO. D-433—

BREWSTER, N. Y.—Heat-X-Changer Co. has introduced a new line of inner-fin chillers for use in chilled water air conditioning systems and other liquid cooling applications.

The manufacturer reports that incorporation of patented "Heat-X" inner-fin construction makes this the most compact shell-and-tube chiller on the market.

The new Heat-X chillers have completely non-ferrous water passages to prevent corrosion.



Timer Turns Room Cooler On, Off Automatically

—KEY NO. D-434—

MOUNT VERNON, N. Y.—A timer that will turn on and shut off a room air conditioner at pre-set specified times has been introduced by the Tork Clock Co., Inc. here.

To operate, the clock is plugged into an a.c. outlet and the air conditioner into the side tap on the Tork 1919-GSK. The "on" tripper of the 24-hour dial is set for the time the air conditioner is to go on each day. The "off" tripper is set for the time it is to stop. Operation is automatic from there.

In addition, the timer is equipped with a "calendar wheel" that combines with the 24-hour dial. This seven-armed wheel has provisions for set screws, supplied with the timer. When a screw is set in the proper arm—each is marked for a different day of the week—the Tork prevents the air conditioner from turning on that day, but operates at scheduled times on all other days.

There is also a manual switch for on-off control at other hours. Operation of this switch does not disturb the master cycle.

Housed in a metal case, the Tork air conditioner timer retails for \$24.95.

Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No. Key No.
Key No. Key No.
Key No. Key No.
Key No. Key No.

Products Advertised
(list name, page, and issue date)

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450 W. FORT ST. DETROIT 26, MICHIGAN

Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers



Paul Reed

Cold Weather Problems (8)

If the compressor is cold—colder than the evaporator—the refrigerant condenses from the evaporator, through the suction line, into the compressor. Some of it condenses in the cylinders themselves, and some is absorbed into the cold oil in the crankcase.

On many installations it is feasible to use a suction line solenoid that is closed during the idle cycle, to shut off the suction line and thus prevent refrigerant from condensing from the evaporator into the compressor.

On multiple installations having two or more refrigerators connecting to the same compressor, the use of suction line solenoids may prove to be a bit complicated and rather expensive, particularly if the refrigerators and their evaporators are held at different temperatures.

When the condensing unit in a cold room starts, the compressor crankcase and head, and the condenser, are cold, so condensation may continue for a short time until they warm up. For the rest of the running cycle, the unit is warm and there is no trouble until it cools down again shortly after the compressor stops.

Therefore, if we can just keep the unit warm during the idle cycle, we will not be apt to have any trouble and there will be no condensation of refrigerant into the compressor. Moreover, the oil, being warm, will not be able to absorb much refrigerant. Cold oil may absorb 50% or even more, of its weight, of refrigerant. Warm oil may be able to absorb only two or three per cent of refrigerant.

KEEP THE COMPRESSOR WARM

Instead of using a suction line solenoid, it may prove to be less expensive, more effective, and much simpler to either move the condensing unit into a warmer location or to supply enough heat to the cold basement room in which the condensing unit is located to keep out of trouble.

Many times, simply closing the outside doors or windows of the compressor room may be all that is necessary. Sometimes having a door or window open from the cold room to a furnace room may

supply enough heat to keep the compressor warm enough to prevent condensation.

If the condensing unit cannot be moved to a warm enough location, or if the room in which the condensing unit is located cannot be kept warm enough (50° F. or above is usually warm enough), it may be feasible to build a small enclosure around the condensing unit.

This enclosure should have adjustable louvers on the air inlet and outlet sides. Ideally, the louvers should be motor operated and their position controlled by a thermostat in the enclosure, but this is rather expensive and not often possible from a cost standpoint.

SUPPLY ELECTRIC HEAT

In extreme cases, an electric light bulb of 75 or 100 watts may be put inside the enclosure. It can be kept lighted continuously, or by use of a normally closed relay actuated by the condensing unit motor circuit, it may be turned on during the idle cycle and off during the on cycle.

A serviceman can use his ingenuity to devise various means to keep the compressor warm during the idle cycle. One man reports that he used a 300 watt electric element from an old toaster. He wrapped it in asbestos and placed it under the compressor, and connected it by means of a relay so that the current was on the element only while the compressor motor operated.

An electric resistance wire known as "soil cable" can be wrapped around the compressor crankcase to keep the oil warm. It has rather high resistance, and if properly selected, can hold the compressor crankcase and the oil to about 120°, which is a very satisfactory temperature.

Some servicemen will recall that the early General Electric Monitor Top units had an electric element of about 15 watts in a tube in the oil of the crankcase. This element was accessible by removing the small nameplate. Its purpose was to keep the crankcase oil warm during the off cycle and thus prevent the refrigerant (SO₂) from condensing in the crankcase, and thus causing a tendency toward slugging at the start of the running cycle.

If the condensing unit in a cold location runs all or most of the time, or if the off cycles are of

short duration, the unit may ordinarily keep itself—including the compressor oil—warm enough to prevent condensation of refrigerant into the compressor, and the warm oil will not absorb enough refrigerant to cause slugging.

One remedy is to cause the condensing unit to operate often—that is, not permit it to be idle very long at a time. This can be done by using a timer to start the unit every few minutes during the off cycle and run it enough to keep the compressor and oil warm.

If the unit starts to cool off, the head pressure starts to drop. This is taken advantage of by a control made by at least one manufacturer (Detroit Controls). It consists of a reverse acting pressure control

whose bellows is connected to the condenser, and whose switch is connected in parallel with the thermostat or pressure control. In this manner, it can start and stop the compressor independently of the main control.

As the condensing unit cools, the condensing pressure starts to drop. The reverse acting control is set to start the unit when the condensing pressure is such as to indicate that the unit is no longer warm.

It then keeps the unit in operation until the condensing pressure is back up to normal operating pressure, at which time the condenser and compressor will be warm. Thus, this control operates the unit enough to keep itself warm, and uses the head pressure

as an index and control means to assure that the unit stays warm.

This series of articles has attempted to show some of the causes and suggest some remedies in case the refrigerator or the condensing unit is in a cold location.

The best remedy lies in avoiding the cold location at the time of installation. It is often easier to prevent the trouble than to cure it after it has occurred. If your customer insists on a cold location for either refrigerator or unit, show him why he should let you choose a location sufficiently warm to avoid trouble. He probably doesn't realize the possibility of trouble and you can save him and yourself a considerable amount of trouble that could have been avoided.

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- Appl'n On: stainless (430 Type included), copper, brass, bronze, steel, chromium, Alnico . . . over chrome plating or can be chrome-plated.
- Tensile: 10-30,000 lbs. p.s.i. (TEST DATA AVAILABLE)
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But Virginia No. 10 is much more than a good degreaser. It has a dielectric strength of 20,000 volts. The significance of this is it will not attack electrical insulation or leave any current-carrying residues. Its flammability hazard is very low. And you can stand a concentration of 200 parts per million for hours without harm—it's about 8 times less toxic than carbon "tet."

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POSITIONS WANTED

ATTENTION, MANUFACTURERS—Maybe you don't need a full-time writer for your instruction sheets and manuals. In that case, it will pay you to look into a new writing service offered by a practical refrigeration and air conditioning man who can handle clear "American" English. VIRGIL C. JAMES, Cuba, Missouri.

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FOR SALE: commercial and domestic refrigeration sales and service business, established many years, with stock and best accounts in city. Located in the southern part of Connecticut. Plenty of work for three men. For full particulars, write BOX 4547, Air Conditioning & Refrigeration News.

Room Air Conditioner Models

Sub-Zero

Sub-Zero Freezer Co., Inc.,
Route 3, Madison, Wis.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
SZ50	1/2	50/60-115	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
SZ75-15	3/4	50/60-115	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
SZ75-30	1	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
SZ100-30	1 1/2	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
OA 75-15	3/4	50/60-115	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
MA 75-15	3/4	50/60-115	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
BI 75-15	3/4	50/60-115	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
OA 75-30	1	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
MA 75-30	1	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
BI 75-30	1	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
OA 100-30	1 1/2	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
MA 100-30	1 1/2	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....
BI 100-30	1 1/2	50/60-230	26 1/2 27 1/2 14 1/2	7 1/2	Yes	.....

Vikimatic

Viking Mfg. Corp.,
1747 Chester Ave., Cleveland, Ohio

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
60 CTG	1/2	.....	11 3/4 9 1/4 14 1/2	9 1/4	.....	.....
50 54G	1/2	.....	11 3/4 9 1/4 14 1/2	.....	.....	.....
75 54G	3/4	.....	11 3/4 9 1/4 14 1/2	.....	.....	.....
100 54G	1	.....	11 3/4 9 1/4 14 1/2	.....	.....	.....
AC 75	3/4	.....	18 17 28	.....	.....	.....
AC 150	1 1/2	.....	36 17 28	.....	.....	.....

AC models are mobile air conditioners.
*Inside. †Outside.

Wardaire

Montgomery Ward & Co.,
619 W. Chicago Ave., Chicago, Ill.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
5504	1/2	60-115	23 1/2 30 1/4 14 1/2	11 1/4	Yes	\$259.95
5754	3/4	60-115	23 1/2 30 1/4 14 1/2	11 1/4	Yes	\$299.95
5774	1	60-230	23 1/2 30 1/4 14 1/2	11 1/4	Yes	\$299.95
5104	1 1/2	60-230	27 1/2 34 1/2 16	13 1/2	Yes	\$359.95

Weatherking

TeleKing, 601 W. 26th St.,
New York 1, N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
1/2	1/2	60-115/230	26 1/2 28 1/2 12 1/2	14 1/2	Yes	.....
1	1	60-115/230	26 1/2 28 1/2 14 1/2	14 1/2	Yes	.....

Welbilt

Welbilt Stove Co., Inc.,
Maspeth 78, L. I., N. Y.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
450	1/2	115	22 1/2 28 1/2 15 1/2	13 1/2	No	\$299.95
475	3/4	115	22 1/2 28 1/2 15 1/2	13 1/2	No	\$339.95
476	1	230	26 1/2 28 1/2 15 1/2	13 1/2	No	\$344.95
4100	1 1/2	230	26 1/2 28 1/2 15 1/2	13 1/2	No	\$389.95
4150	2	230	26 1/2 28 1/2 15 1/2	13 1/2	No	\$479.95

Winkler

Stewart-Warner Corp., U. S. Machine
Div., Lebanon, Ind.

Model No.	Size (In Hp.)	Cycle and Voltage	Dimensions (In.)— Width Depth Height	Proj. In Room	Pump Out (Yes or No)	Suggested List Price
SW-50115	1/2	115	28 13 1/4 16	13 1/4	Yes	.....
SW-75115	3/4	115	28 13 1/4 16	13 1/4	Yes	.....
SW-10230	1	230	28 13 1/4 16	13 1/4	Yes	.....

Industry Faces Cities' Rule on Waste Water--

(Concluded from Page 1, Col. 4)
in a three-month delay of this rule.

A compromise measure has been worked out and is expected to be issued by the sanitation bureau shortly.

"Preliminary discussions indicate that the city may approve for a single occupant a run-off of 200 gals per hour, or the amount necessary to operate a unit or system of 24,000 B.t.u./hr. For systems of 36,000 B.t.u./hr. or more, a water-conserving device would be installed," the association says.

The city's other goals for the immediate future are (1) the requirement of an Industrial Waste Permit on all connected installations of air conditioning and refrigeration units with a combined capacity of 18,000 B.t.u./hr. or more; (2) installation of an automatic water valve on all systems up to 24,000 B.t.u./hr.

These two probable requirements are inferred from comments of John H. Ashley, industrial waste engineer in the city's Bureau of Sanitation.

The city, he further indicated, would accept the manufacturer's nameplate rating of 2 tons or 2 hp. as the equivalent of 24,000 B.t.u./hr. for permit purposes.

Discussions bring out the point that the city originally assumed the 25 gals. per hour limitation would be sufficient for units of 2 hp. and under. When it became ob-

vious that this amount was quite inadequate for the purpose, the city took a liberal view in interpreting the regulation.

Problems of water supply and disposal regulations are complicated for contractors here by the fact that two sewer systems serve the area, one operated by the city of Los Angeles, the other by the county of Los Angeles.

Although it is agreed in theory that the two ought to follow the same regulations, actually the two systems have different problems.

For example, the cost of treating waste water in the city's Hyperion sewer system is said to run eight to 10 times that of the county system, due largely to the degree of treatment necessary.

The city system empties into the ocean off Santa Monica adjacent to bathing beaches, thus necessitating complete treatment. The county system discharges into the ocean off the rocky coast near Palos Verdes and complete treatment is unnecessary.

In addition to Los Angeles proper, the city system serves 11 other cities in the western part of the county and a number of unincorporated communities. Although the Los Angeles Bureau of Sanitation makes the regulations, enforcement outside the city of Los Angeles must be left to the 11 other cities, while the County Sanitation District takes care of the unincorporated areas.

This finds the county in the position of having to enforce two sets of regulations—those of the city of Los Angeles and the regulations it sets up for its own system, which serves 25 cities and 80 unincorporated communities.

Present county regulations are obscure and uncertain. Although the county requires permits for connections of "industrial waste" to its system, it has not clearly defined "industrial waste," nor does it have a set of regulations as to what will or will not be permitted.

Each application is considered on its own merit, but it is said hereabouts that permits for installations up to and including 5 hp. are not difficult to obtain.

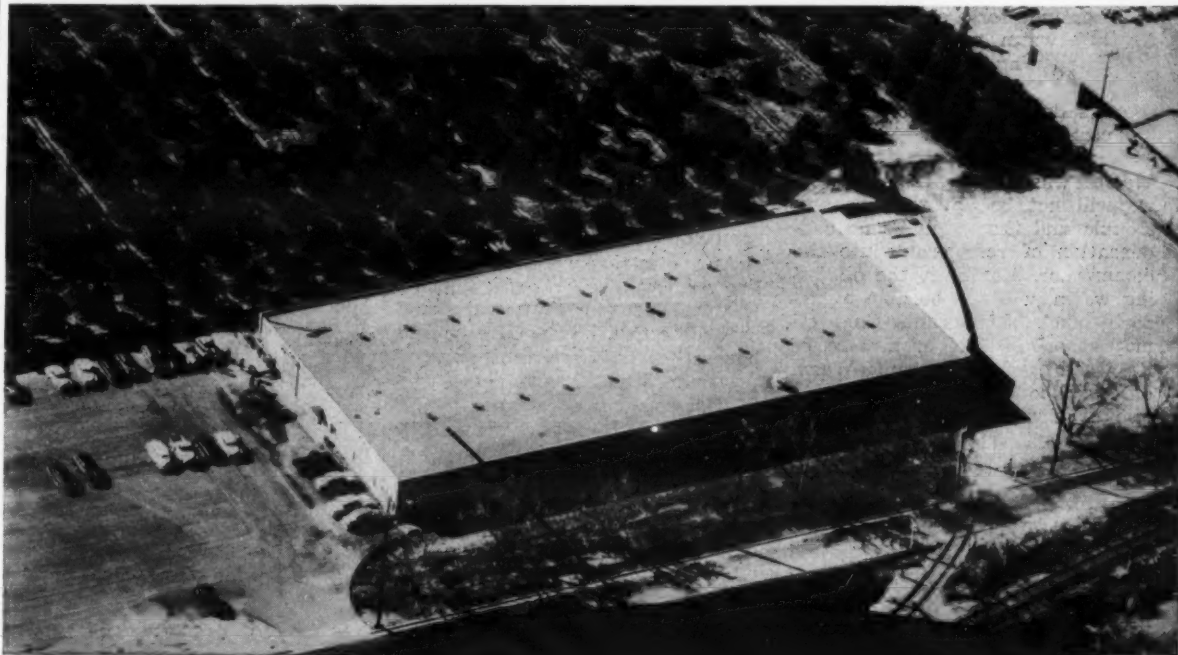
Water from private dwellings, apartments, and small restaurants is not considered by the county to be "industrial waste" and thus requires no permit.

Odd Prices --

(Concluded from Page 1, Col. 2)
ending with the introduction of 1955 models.

Other manufacturers evened off their lowered prices to keep their usual .00, .50, or .95 endings.

Those who cut their prices to the penny are believed to have done so to emphasize to the public that the customer was getting the exact amount of the tax cut, and will probably retain such prices as long as they have a promotional value.



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